User Manual

Milli-Q® Direct 8/16 System

About this User Manual

Purpose	This User Manual is intended for use with a Milli-Q® Direct Water Purification System. This User Manual is a guide for use during the installation, normal operation and maintenance of a Milli-Q Direct Water Purification System. It is highly recommended to completely read this manual and to fully comprehend its contents before attempting installation, normal operation or maintenance of the Water Purification System. If this User Manual is not the correct one for your Water Purification System, then please contact Millipore.
Terminology	The term "Milli-Q Direct Water Purification System" is replaced by the terms "Milli-Q system" or "System" for the remainder of this User Manual unless otherwise noted.
Document	Rev. 0, 01/2010

About Millipore®

Telephone	See the business card(s) on the inside cover of the User Manual binder.
Internet Site Address	www.millipore.com/bioscience
Manufacturing Site	Millipore SAS 67120 Molsheim FRANCE

Legal Information

Notice

The information in this document is subject to change without notice and should not be construed as a commitment by Millipore Corporation. Millipore Corporation assumes no responsibility for any errors that might appear in this document. This manual is believed to be complete and accurate at the time of publication. In no event shall Millipore Corporation be liable for incidental or consequential damages in connection with or arising from the use of this manual.
We manufacture and sell water purification systems designed to produce pure or ultrapure water with specific characteristics (µS/cm, T, TOC, CFU/ml, Eu/ml) when it leaves the water purification system provided that the System is fed with water quality within specifications, and properly maintained as required by the supplier.
We do not warrant these systems for any specific applications. It is up to the end user to determine if the quality of the water produced by our systems matches his expectations, fits with norms/legal requirements and to bear responsibility resulting from the usage of the water.

Warranty

Millipore Corporation ("Millipore") warrants its products will meet their applicable published specifications when used in accordance with their applicable instructions for a period of one year from shipment of the products. MILLIPORE MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THERE IS NO WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. The warranty provided herein and the data, specifications and descriptions of Millipore products appearing in Millipore's published catalogues and product Literature may not be altered except by express written agreement signed by an officer of Millipore. Representations, oral or written, which are inconsistent with this warranty or such publications are not authorized and if given, should not be relied upon. In the event of a breach of the foregoing warranty, Millipore's sole obligation shall be to repair or replace, at its option, the applicable product or part thereof, provided the customer notifies Millipore promptly of any such breach. If after exercising reasonable efforts, Millipore is unable to repair or replace the product or part, then Millipore shall refund to the customer all monies paid for such applicable product or part. MILLIPORE SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL, SPECIAL OR ANY OTHER INDIRECT DAMAGES RESULTING FROM ECONOMIC LOSS OR PROPERTY DAMAGE SUSTAINED BY ANY CUSTOMER FROM THE USE OF ITS PRODUCTS.

Continued on next page

Legal Information Continued

Trademarks

Millipore, Elix, Q-Pak, Progard, Milli-Q, BioPak, EDS-Pak, Q-POD and Millipak are registered trademarks of Millipore Corporation.
The "M" Mark and VOC-Pak are trademarks of Millipore Corporation.
All other trademarks are trademarks of their respective manufacturers.

Copyright

© 2009 MILLIPORE CORPORATION. PRINTED IN FRANCE. ALL RIGHTS RESERVED. THIS BOOK OR PARTS THEREOF MAY NOT BE REPRODUCED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE PUBLISHERS

Safety Information

Statement

Your Milli-Q Direct System should be installed and operated according to the instructions in this manual.
In particular, the hydraulic and electrical specifications should be followed and met.
It is important to use this equipment as specified in this manual; using this equipment in a different manner may impair the safety precautions of the Milli-Q Direct System.

Symbols

Symbol	Meaning
	This HAZARD symbol is used to refer to instructions in this manual that need to be done safely and carefully.
	This ATTENTION symbol is used to refer to instructions in this manual that need to be done carefully.
	This UV RADIATION sticker is used to refer to a position on the Milli-Q System Cabinet or inside of it where exposure to UV light is possible.
	This DANGER sticker is used to refer to a position on the Milli-Q System Cabinet or inside of it that could be hazardous.
	This ELECTRICAL GROUND sticker is used to refer to a position on the Milli-Q System Cabinet or inside where an electrical ground connection is made.
	This ELECTRICAL DANGER sticker is used to refer to a position on the Milli-Q System Cabinet or inside where an electrical danger could exist.

Do not remove the covers of the Milli-Q Direct System at any time.
Electrical and mechanical components inside the Milli-Q Direct System could pose a hazard.
A qualified Millipore Service Representative should perform any work that needs to be done while the Milli-Q Direct System is opened.

Table of Contents

Product Information **8**
Overview 8
Cabinet 9
Reservoir 14
Consumables 15
Specifications and requirements 16
Installation **19**
Overview 19
Alarms generated during installation 20
Assembling the POD Unit 22
Tubing, cables and power cord 23
Installing the Progard Cartridge 26
Installing the Q-Pak Pack 28
Rinsing the RO Cartridges 30
Rinsing the Q-Pak Pack 32
Installing a POD Pak 34
Registering UV Lamp timers 36
Registering PERFORM RO CL2 CLEANING message timer 38
Registering EXAMINE INLET STRAINER message timer 40
Calibrating the Flow rate 42
Performing a TOC Curve Check 44
Software **45**
Overview 45
Software Map 46
Standby Mode 47
General information 47
Description of Standby Menu 48
Manager Menu 51
Description 51
Ready Mode 56
General information 56
Description of Ready Menu 57
Using the Milli-Q Direct System **62**
Overview 62
Dispensing water 63
Viewing water quality 65
Viewing Operation 66
Viewing Consumable Status 68
Calling Millipore 69
Viewing Information 70
Maintenance **72**
Overview 72
Maintenance Schedule 73
Replacing the Progard Cartridge and Vent Filter 74
Replacing the Q-Pak Pack 77
Replacing a POD Pak 81
TOC Curve Check 84
Sanitising the RO Cartridge(s) 86
Cleaning the RO Cartridge(s) 89

Cleaning the Inlet Strainer....91
Calibrating the Flow rate....94
Alarms....95
Overview....95
Alarm Information....96
Summary of Alarm messages....100
Alerts....103
Overview....103
Alert information....104
Summary of Alert messages....109
Ordering Information....113
Consumables, Accessories and Systems....113

Product Information

Overview

Purpose

This chapter contains topics related to the System.
Some of the more important topics in this chapter are:

- installation requirements,
- consumable information, and
- dimensions of various components of the System.

Contents

This chapter contains the following topics:

Topic	See Page
Cabinet	9
Reservoir	14
Consumables	15
Specifications and requirements	16

Cabinet

Overview

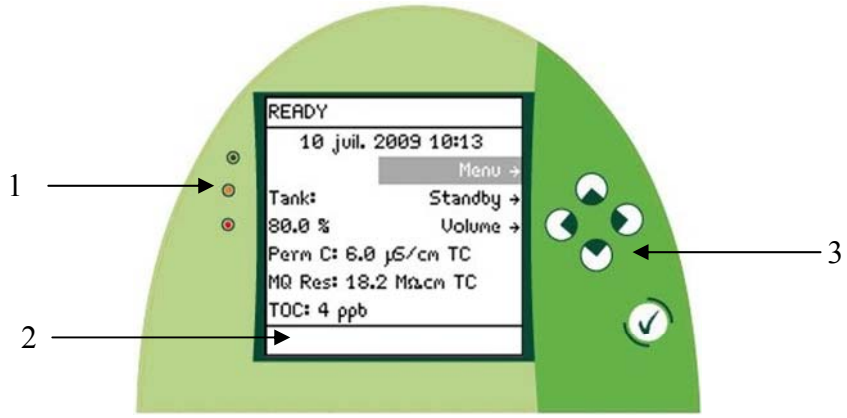
Item	Description/Name
A	Point Of Delivery (POD)
B	POD Pak
C	Connections for tubings, power cord, level sensor and other cables
D	Q-Pak® Pack location
E	Sanitisation Port
F	Main Display
G	Progard® Cartridge location

Continued on next page

Main Display function

The Main Display is used to navigate the System software.

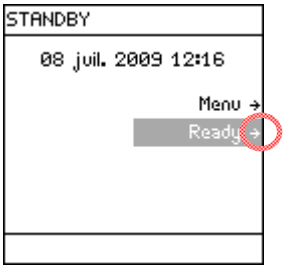
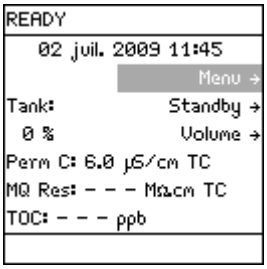
Details of the Main Display



Item	Description
1	LEDs
2	Main LCD
3	Main Keypad

Right

The use of the Right Keypad button is shown below. It is used to move to the next screen.
In this example, the system is changed from STANDBY Mode to READY Mode.

Diagram 1	Action	Diagram 2
	Press .	

Continued on next page

Left

The use of the Left Keypad button is shown below. It is used to move to the former screen.

Diagram 1	Action	Diagram 2
MQ RECIRC MODE Automatic Recirculation: 3 min/h Press ↑ and ↓ to adjust. Press ✓ to validate. Press ← to exit.	Press .	SETUP Install Date → Buzzer → MQ Recirc Mode → POD Flow Stop → Temp Comp Mode → Flow Calibration → UV 254 nm Activation →

Up

The use of the Up Keypad button is shown below. It is used to scroll up in a menu.

Diagram 1	Action	Diagram 2
READY 08 juil. 2009 12:20 Menu → Tank: Standby → 80.0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: 18.2 MΩ.cm TC TOC: 4 ppb	Press .	READY 08 juil. 2009 12:20 Menu → Tank: Standby → 80.0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: 18.2 MΩ.cm TC TOC: 4 ppb

Down

The use of the Down Keypad button is shown below. It is used to scroll down in a menu.

Diagram 1	Action	Diagram 2
READY 08 juil. 2009 12:20 Menu → Tank: Standby → 80.0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: 18.2 MΩ.cm TC TOC: 4 ppb	Press .	READY 08 juil. 2009 12:20 Menu → Tank: Standby → 80.0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: 18.2 MΩ.cm TC TOC: 4 ppb

Continued on next page

Validate

The use of the Validate Keypad button is shown below. It is used to confirm a parameter modification.

Diagram 1	Action	Diagram 2
MILLI-Q PRODUCT RES Milli-Q Product Resistivity Setpoint: 16.5 MΩcm TC Press ↑ and ↓ to adjust. Press ✓ to validate. Press ← to exit.	Press ✓.	SET POINTS RO CL2 Cleaning → Permeate Cond → Tank ReFill → Milli-Q Product Res → Milli-Q Product TOC → Millipak → BioPak →

READY Mode – water quality values

The READY Mode screen display is explained below.

Diagram	Explanation
READY 08 juil. 2009 12:21 Menu → Tank: Standby → 80.0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: 18.2 MΩcm TC TOC: 4 ppb	In this example, • the water filling the tank has a permeate conductivity of 6 µS/cm. • the water dispensed from the POD Unit has: – a resistivity of 18.2 MΩ.cm, – is temperature compensated (TC) at 25°C, and – the TOC value is 4 ppb.
READY 02 juil. 2009 11:45 Menu → Tank: Standby → 0 % Volume → Perm C: 6.0 µS/cm TC MQ Res: - - - MΩcm TC TOC: - - - ppb	In this example, there are no Milli-Q water quality measurements to display. The water quality is only displayed when it is actually measured during water delivery or recirculation.

LEDs

The LEDs are described below.

Item	Description
Green LED	System is operating within specifications.
Yellow LED	An Alert is present.
Red LED	An Alarm is present.

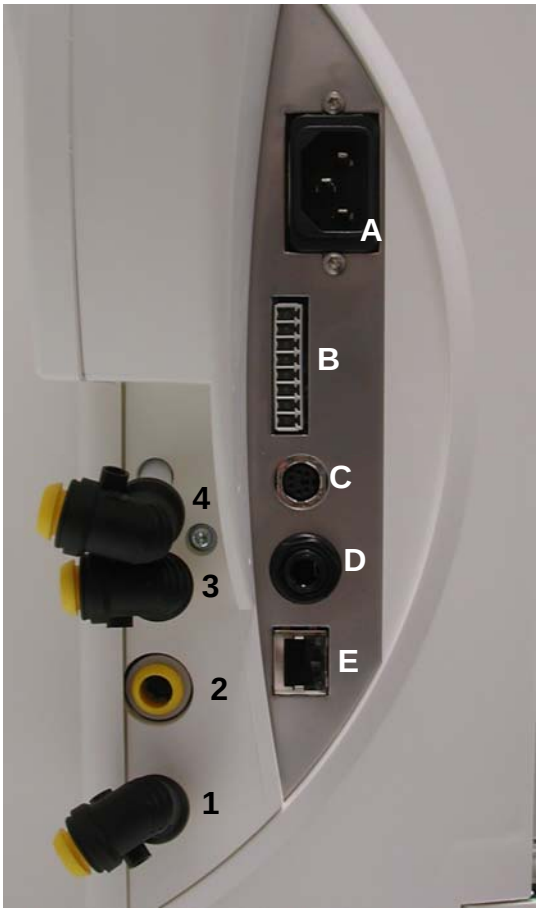
NOTE:

If an Alarm and an Alert are present at the same time, then only the red LED is lit.

The red and yellow LEDs are never lit at the same time.

Continued on next page

Port and cables The port and cable connections are explained below.



Item	Description	Item	Description
1	RO Reject Port	A	Power Entry connection (100 – 240 V)
2	Feed water Port	B	Accessories connection (maximum 24 VDC)
3	From Reservoir Port	C	Termination Plug Connection
4	To Reservoir Port	D	Level Sensor Connection (maximum 5 VDC)
		E	Ethernet connection (maximum 5 VDC)

Reservoir

Information

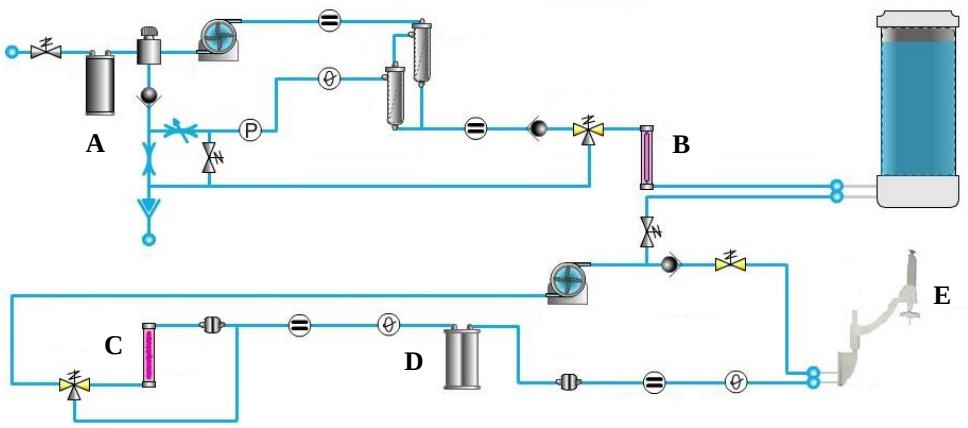
Millipore recommends using a Reservoir having the following catalogue number:

Size	Catalogue Numbers
30 Litre	TANKPE030
60 Litre	TANKPE060
100 Litre	TANKPE100

Consumables

Flow diagram

The water flow through a System is shown here in a flow diagram.
The various consumables are described below.



Item	Description
A	Progard Cartridge
B	UV 254 nm Lamp (Optional)
C	UV 185 nm Lamp
D	Q-Pak Pack
E	POD Pak

Progard Cartridge

The Progard Cartridge protects the RO Cartridge in order to increase its lifetime.
It prevents mineral scaling, damage due to particulate and chlorine oxidation of the RO Cartridge(s).

UV 254 nm Lamp

The UV 254 nm Lamp is optional.
It emits light at 254 nm. It is used to kill bacteria.

UV 185 nm Lamp

The dual wavelength UV 185 nm Lamp emits light at 185 nm and at 254 nm.
It kills bacteria and reduces the level of organic molecules in the water.

Q-Pak Pack

The Q-Pak Pack removes trace levels of ions and organic molecules.

POD Pak

The POD Pak is the final water purification device.
It is attached to the Point of Delivery outlet.
The POD Pak provides additional quality and insurance that trace contaminants related to specific applications are removed just before ultrapure water is delivered.

Specifications and requirements

Milli-Q® Water quality

The water delivered from a POD Unit has the following characteristics.

Parameter	Specification	Units
Resistivity	18.2	MΩ.cm @25°C
TOC	≤ 5	ppb
Particulates > 0.22 µm**	< 1	Particulates/mL
Bacteria**	< 0.1	cfu/mL
Pyrogens*	< 0.001	Eu/mL
RNases*	< 0.01	ng/mL
DNases*	< 4	pg/µL
Flow Rate**	0.05 – 1.5	L/min

(*) With BioPak® Final Filter
(**) With Millipak® or BioPak Final Filter

NOTE:
These specifications are valid if feed water within specification and if correct maintenance is performed on the system. Some specifications may not be achieved at start-up.

Weight

The various weights are found in the table below.

System	Operating Weight (kg)	Dry Weight (kg)	Shipping Weight (kg)
Milli-Q Direct 8	27	20	24
Milli-Q Direct 16	28	21	25

Electrical

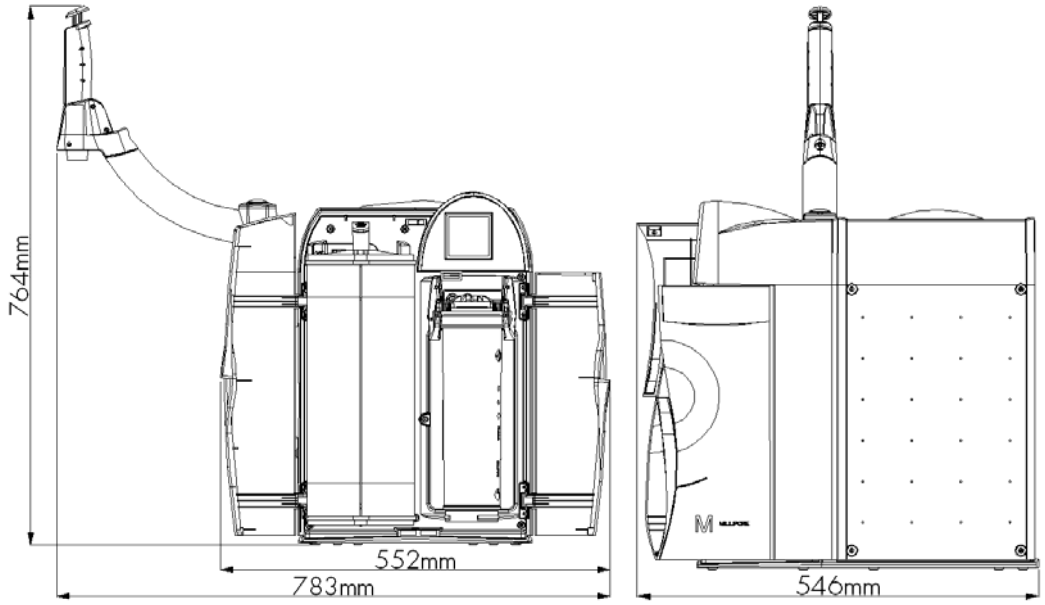
The electrical specifications and data are found in the table below.

Parameter	Value
Voltage	100-230 VAC ±10%
Frequency	50-60 Hz ±10%
Main Fuse	• 2.5 Amp Fast Acting; 5 mm x 20 mm; 250 V safety voltage. • The fuse should be serviced by a qualified Millipore Service Representative.
Power Used	145 VA
Power Cord Length	2.5 metres
Electrical Ground	Earth Grounded
Power Cord use	• The System is powered on and off by removing the power cord from the wall outlet. • The power cord should be plugged into a wall outlet that is accessible.

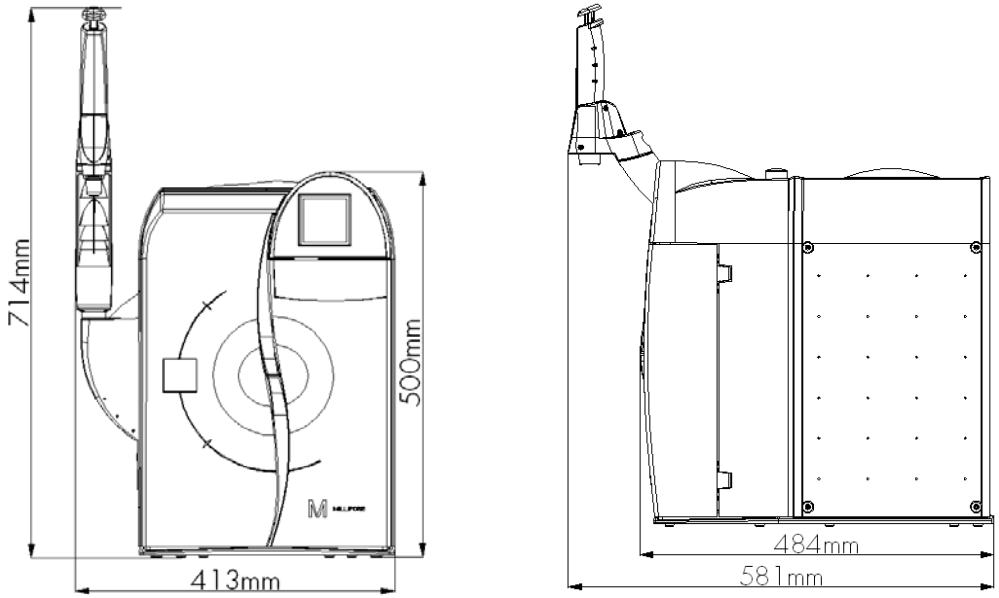
Continued on next page

Specifications and requirements, Continued

Dimensions



With POD Unit up



With POD Unit down

Materials of construction

Please contact Millipore for a list of the Materials of Construction.

Continued on next page

Specifications and requirements, Continued

Feed water

The Feed water requirements are listed here.

Parameter	Value
Type of Feed water	Potable tap water
Conductivity	< 2000 µS/cm
Pressure	1 bar < P < 6 bar
Temperature	5°C < T < 35°C
Dissolved CO_2	< 30 ppm
Free Chlorine	< 3 ppm
Fouling Index	< 12
pH	4 < pH < 10

Environmental

The Environmental requirements are listed here.

Parameter	Value
Altitude	< 3000 metres
Ambient operating temperature	4 – 40°C
Ambient storage temperature	4 – 40°C
Installation Category	II
Location	The System is intended for indoor use only.
Pollution Degree	2
Relative humidity during storage and operation	Maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

Noise Level

The noise level is < 50 dB at a distance of 1 metre.

Consumables

The minimum consumables required for installation are listed here.
Note that these items are not shipped with the System and must be ordered separately:

- Progard Cartridge,
- Q-Pak Pack, and
- POD Pak.

Reservoir location

The Reservoir must be located relative to the Water System:

- $0 \leq y \leq 2$ metres, where y = vertical distance, and
- $0 \leq x \leq 3$ metres, where x = horizontal distance.

Installation

Overview

Purpose

This chapter explains how to install the System.

Contents

This chapter contains the following topics:

Topic	See Page
Alarms generated during installation	20
Assembling the POD Unit	22
Tubing, cables and power cord	23
Installing the Progard Cartridge	26
Installing the Q-Pak Pack	28
Rinsing the RO Cartridges	30
Rinsing the Q-Pak Pack	32
Installing a POD Pak	34
Registering UV Lamp timers	36
Registering PERFORM RO CL2 CLEANING message timer	38
Registering EXAMINE INLET STRAINER message timer	40
Calibrating the Flow rate	42
Performing a TOC Curve Check	44

Summary list

The steps shown below outline the sequence and major actions of a System installation. Please refer to this list throughout the installation.

Step	Action
1	Put POD Arm onto POD Mast
2	Put Point Of Delivery onto POD Arm
3	Install tubing, termination plug and power cord
4	Power on the System, check date and time
5	Install the Q-Pak Pack
6	Install, and flush the Progard Cartridge
7	Flush and rinse the RO Cartridge(s)
8	Fill the Reservoir
9	Flush and rinse the Q-Pak Pack
10	Install and Register the POD Pak
11	Register the UV Lamp timers
12	Register the PERFORM RO CL2 CLEANING message timer
13	Register the EXAMINE INLET STRAINER message timer
14	Calibrate the Product Water flow rate
15	Perform a TOC Curve Check

Alarms generated during installation

Overview

- During the installation of a Milli-Q System, certain Alarm messages are generated.
- This occurs because:
    - the Reservoir is empty,
    - there is air in the tubings and in the Progard Cartridge,
    - the Progard Cartridge is not installed, and
    - the Q-Pak Pack is not installed.
- These alarms are explained here. For more information about Alarm messages, see the chapter titled 'Alarms'.

TANK EMPTY message

- This alarm occurs because the Reservoir is empty during most of the installation.
- This alarm goes away when the Reservoir is partially full.
- To cancel the text display of this alarm message, follow the instructions on the LCD.

PROGARD CARTRIDGE OUT message

- This alarm occurs because the Progard Cartridge is not installed.
- This alarm goes away when the Progard Cartridge is detected by the Milli-Q System.
- To cancel the text display of this alarm message, follow the instructions on the LCD.

Q-PAK PACK OUT message

- This alarm occurs because the Q-Pak Pack is not installed.
- This alarm goes away when the Q-Pak Pack is detected by the System.
- To cancel the text display of this alarm message, follow the instructions on the LCD.

MILLI-Q RES < SP, REPLACE Q-PAK message

- This alarm occurs because the Q-Pak Pack is not fully rinsed out or there is air in the tubing near the resistivity sensor.
- This alarm goes away when a few litres of water are dispensed from the POD Unit.
- To cancel the text display of this alarm message, follow the instructions on the LCD.

LOW FEED WATER PRESSURE message

- This alarm occurs because there is air in the tubings and in the new Progard cartridge.
- When the air is gone and replaced with water, this alarm does not occur anymore during installation.
- To cancel the text display of this alarm message, follow the instructions on the LCD.

Continued on next page

Alarms generated during installation, Continued

MILLI-Q TOC > SP	• This alarm occurs because the TOC indicator algorithm needs data after the Q-Pak pack is fully rinsed out. • To cancel the text display of this alarm message, follow the instructions on the LCD.

Assembling the POD Unit

Separating POD Arm and Point Of Delivery

Separate the POD Arm and the Point Of Delivery by cutting and removing the tape that holds them together.

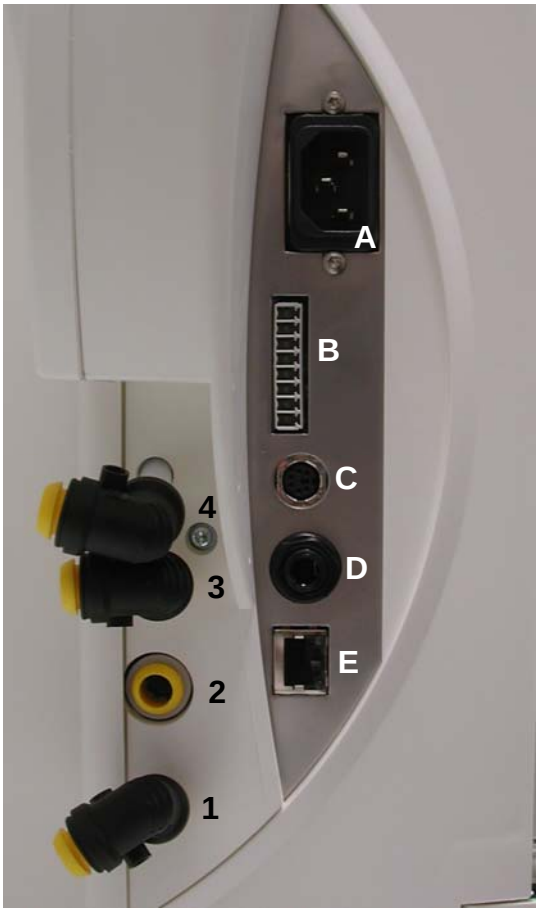
Placing the POD Arm

Place the POD and POD Arm onto the POD Mast as shown below.

Tubing, cables and power cord

Summary

Item	Description
1	RO Reject Water tubing. Goes to a drain.
2	Feed water supply tubing to Milli-Q Direct system.
3	Tubing connected here comes from the bottom of the Reservoir. See the next section.
4	Tubing connected here goes to the bottom of the Reservoir. See the next section.
A	Power cord
B	Accessories cable
C	Termination Plug
D	Level Sensor from Reservoir
E	Ethernet cable

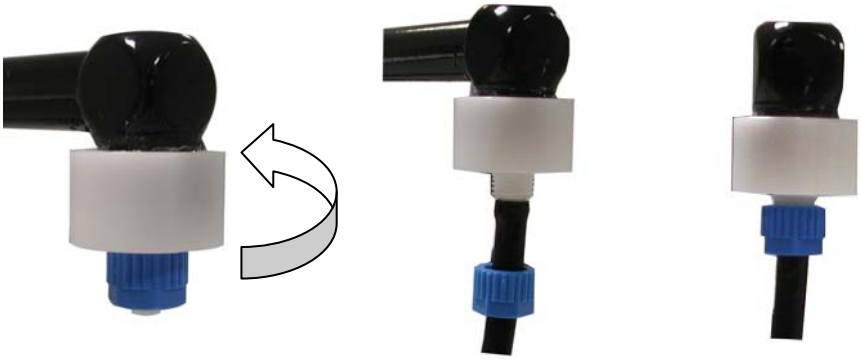


Continued on next page

Tubing, cables and power cord, Continued

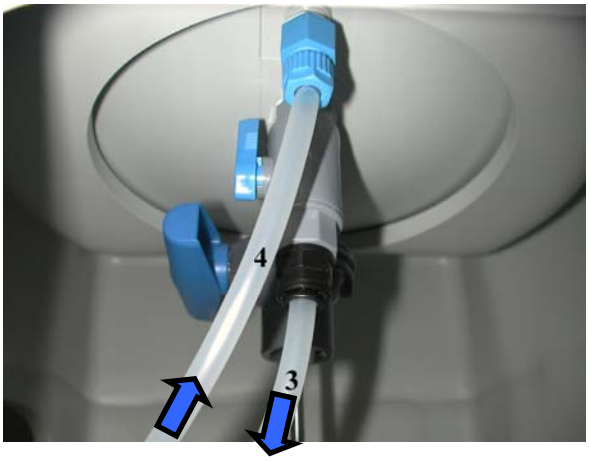
Feed water tubing to pipe

- Install the Inlet Strainer as shown here.
- Connect one end of the feed water tubing to the Inlet Strainer.



Reservoir connections

The tubings from the Water System Ports 3 and 4 are connected to the Reservoir as shown here.



NOTE:

The valve where the tubing from Port 3 is connected must be opened.

Powering the system

- Open the feed water source.
- Plug the power cord into the Water System.
- Plug the power cord into a source of electrical power.
- The Main LCD shows a series of start-up screens.

Continued on next page

Tubing, cables and power cord, Continued

Alarm messages

Because the System is starting with an empty tank, without a Progard Cartridge or a Q-Pak Pack installed, there are alarm messages displayed. These alarms are:

- TANK EMPTY,
- Q-PAK PACK OUT, and
- PROGARD CARTRIDGE OUT.

Cancel Alarms

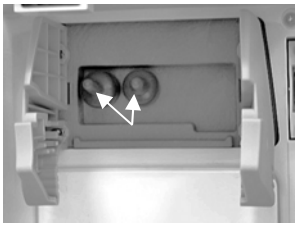
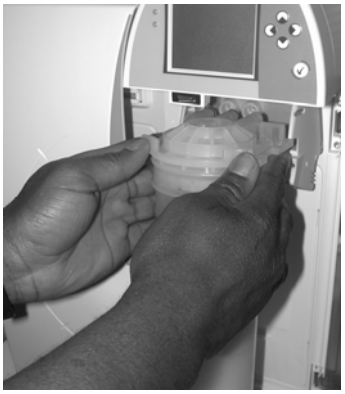
When an Alarm message is displayed, follow the instructions on the screen to cancel the text display of the Alarm.

Check the date

- When the Alarm messages are cancelled, check that the displayed date is correct.
- If necessary, go to the Manager Menu Software and correct the date and time. See the Software Map in the beginning of the Software Chapter for more information.
- Do not install a Progard Cartridge or a Q-Pak Pack until the displayed date is correct.

Installing the Progard Cartridge

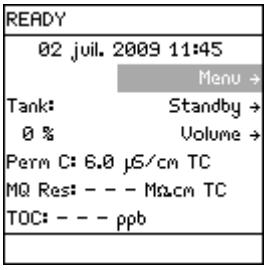
Procedure Follow the steps below to install a new Progard Cartridge.

Step	Action	Diagram
1	Start in STANDBY Mode. ***NOTE:*** The PROGARD CARTRIDGE OUT Alarm message is not shown at this time. By following the instructions earlier in this manual, the alarm was cancelled.	
2	• Open the right door of the System Cabinet. • Remove the 2 protective caps located on the ports inside.	
3	• Remove the covers on the 2 ports of the Progard Cartridge. • Wet the O-rings with water.	
4	• Install the Progard Cartridge until it is fully seated. • Close the right door.	
5	One minute later, the Main LCD shows that a new Progard Cartridge is installed.	

Continued on next page

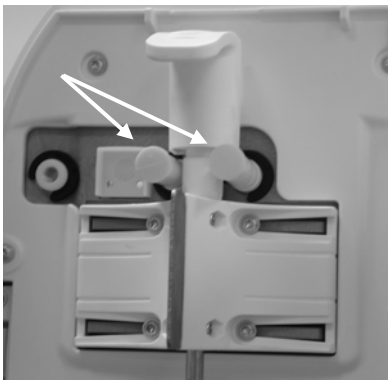
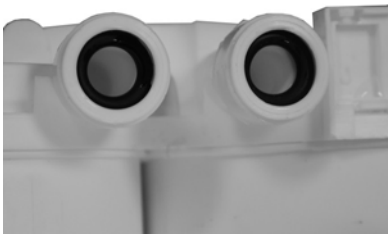
Installing the Progard Cartridge, Continued

Procedure
(continued)

Step	Action	Diagram
6	Press .	
7	When the Progard Cartridge flush has finished, the Water System goes to READY Mode.	

Installing the Q-Pak Pack

Procedure Follow the steps below to install a new Q-Pak Pack.

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	• Open the left door of the System. • Remove the 2 protective caps located on the ports inside.	
3	• Remove the covers on the 2 ports of the Q-Pak Pack. • Make sure the rubber O-rings are firmly in place. • Wet the O-rings with water.	
4	Push the top of the Q-Pak Pack into the ports on the System.	

Continued on next page

Installing the Q-Pak Pack, Continued

Procedure
(continued)

Step	Action	Diagram
5	Push the bottom of the Q-Pak Pack inwards.	
6	Push the pack locking handle down. Close the left door.	
7	One minute later, the Main LCD shows that a new Q-Pak Pack is installed.	
8	Press .	

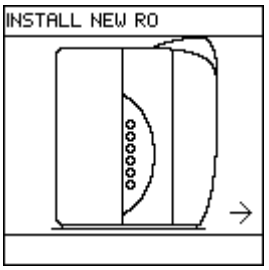
Rinsing the RO Cartridges

Rinse the RO Cartridges

The RO Cartridges must be flushed and rinsed when the Milli-Q System is installed.
Failure to do this results in poor water quality.

Procedure

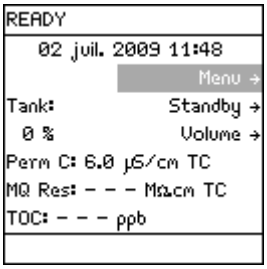
Follow the steps below to flush and rinse the RO Cartridge(s).

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	• Select Menu. • Press .	
3	• Select Maintenance. • Press .	
4	• Select Install new RO. • Press .	

Continued on next page

Rinsing the RO Cartridges, Continued

Procedure
(continued)

Step	Action	Diagram
5	Press .	
6	Press .	
7	Press .	
8	After 15 minutes, the LCD looks like this.	
9	When the 225 minute RO rinse is finished, the Milli-Q System returns to READY Mode. The Reservoir is now being filled.	

Rinsing the Q-Pak Pack

Have enough water!

There has to be enough water in the Reservoir in order to rinse the Q-Pak Pack.

Millipore Reservoir	Minimum
30 Litre	100% Tank Level
60 Litre	> 40% Tank Level
100 Litre	> 30% Tank Level

If there is not enough water in the Reservoir, the TANK EMPTY Alarm is shown. Additionally, air can enter the tubings and can temporarily affect other sensors.

Procedure

Follow the steps below to rinse the Q-Pak Pack.

Step	Action	Diagram
1	• Locate the clear tubing and the barbed fitting from the System Accessories Bag. • Screw the barbed fitting onto the POD Unit. • Push one end of the clear tubing onto the end of the barbed fitting. • Place the other end of the clear tubing into a sink. ***NOTE:*** Do not use any white tape on the threads of the barbed fitting. An O-ring located inside the POD Dispenser ensures water tightness.	
2	Place the System into READY Mode.	
3	Push the POD Plunger all the way down and then release it. In a few minutes, water should come out of the POD Unit.	

Continued on next page

Rinsing the Q-Pak Pack, Continued

Procedure
(continued)

Step	Action	Diagram
4	Dispense water for at least 10 minutes.	
5	Push the POD Plunger all the way down and then release it to stop dispensing water. Leave the System in READY Mode.	

Installing a POD Pak

Overview

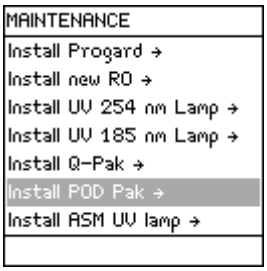
The installation of a POD Pak involves 2 steps. These are:
- placing and flushing the POD Pak onto the POD Unit, and
- registering the installation of a specific POD Pak.

Placing and flushing

Follow the instructions delivered with the POD Pak.

Registering

Follow the steps below to register the installation of the POD Pak.

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	Select Menu. Press .	
3	Select Maintenance. Press .	
4	Scroll down to Install POD Pak. Select it.	

Continued on next page

Installing a POD Pak, Continued

Registering
(continued)

Step	Action	Diagram
5	Press .	
6	Press .	
7	In this example, you choose Millipak. Press .	
8	Press .	
9	Press .	
10	Press 3 times on .	

Registering UV Lamp timers

Introduction

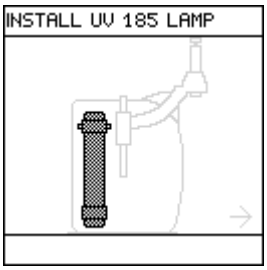
The timer used for each UV Lamp must be reset when the System is installed. If this is not done, then the message indicating that a Lamp replacement is needed is shown too early.

The UV Lamp timers need to be reset for:
- the UV 185 nm Lamp, and
- the UV 254 nm Lamp.

NOTE:
Before doing this, make sure that the date and time have been checked for accuracy.

Procedure

This procedure shows how to reset the timer used for the UV 185 nm Lamp.

Step	Action	Diagram
1	Place the System in STANDBY Mode.	
2	Select Menu. Press .	
3	Select Maintenance. Press .	
4	Select Install UV 185 nm Lamp. Press .	

Continued on next page

Registering UV Lamp timers, Continued

Procedure (continued)

Step	Action	Diagram
5	Press .	
6	Press .	
7	Press .	
8	Press 3 times on .	

Reset UV 254nm Lamp timer

After resetting the timer for the UV 185 nm Lamp timer, reset the UV Lamp timer for the UV 254 nm Lamp.

Registering PERFORM RO CL2 CLEANING message timer

Introduction

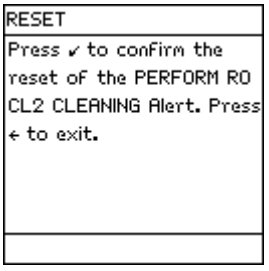
- The timer used to perform RO Cl2 cleaning must be reset when the Water System is installed.
- If this is not done, then the message indicating that the message PERFORM RO CL2 CLEANING is shown too early.

Note

This is only done once, at installation. In the future, this timer is reset automatically after an RO Cl2 cleaning is performed.

Procedure

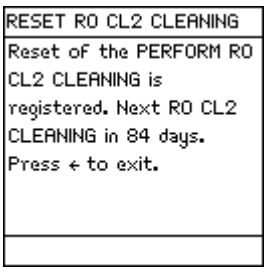
This procedure shows how to reset the timer used for the message PERFORM RO CL2 CLEANING.

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	• Select Menu. • Press .	
3	• Select Maintenance. • Press .	
4	• Select Reset RO CL2 Cleaning. • Press .	

Continued on next page

Registering PERFORM RO CL2 CLEANING message timer,
Continued

Procedure
(continued)

Step	Action	Diagram
5	Press .	
6	Press 3 times on .	

Registering EXAMINE INLET STRAINER message timer

Introduction

- The timer used for cleaning the Inlet Strainer must be reset when the Water System is installed.
- If this is not done, then the message indicating that the message EXAMINE INLET STRAINER is shown too early.

Procedure

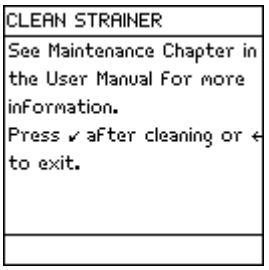
This procedure shows how to reset the timer used for the message EXAMINE INLET STRAINER.

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	• Select Menu. • Press .	
3	• Select Maintenance. • Press .	
4	• Select Clean Strainer. • Press .	

Continued on next page

Registering Examine Inlet Strainer message timer, Continued

Procedure
(continued)

Step	Action	Diagram
5	Press .	
6	Press .	
7	Press 3 times on .	

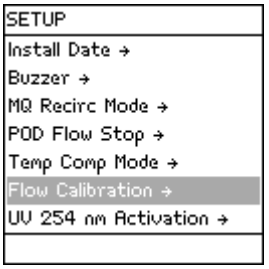
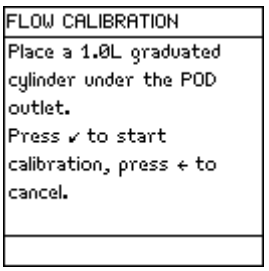
Calibrating the Flow rate

Introduction

The Milli-Q Water flow rate should be calibrated when the System is installed.
A 1 Litre graduated cylinder is needed.

Procedure

Follow the steps below to perform a Flow Calibration.

Step	Action	Diagram
1	Go to STANDBY Mode.	
2	Select Menu. Press .	
3	Enter the Manager Menu. See the Software Chapter to learn how to enter the Manager Menu.	
4	Select Setup. Press .	
5	Select Flow Calibration. Press .	

Continued on next page

Calibrating the Flow rate, Continued

Procedure
(continued)

Step	Action	Diagram
6	Place a 1 L Graduated Cylinder under the POD Unit. Press ✓.	FLOW CALIBRATION Press ✓ or press on the Q-POD keypad if you have installed one to start water delivery. After the water dispensing is complete, measure the collected volume.
7	Press ✓.	FLOW CALIBRATION The system is now delivering water. Task Completion: XX %
8	Water dispenses automatically from the POD Unit. Wait until it stops dispensing water.	FLOW CALIBRATION Volume : 900 mL Use ↑ and ↓ keys to register the value of the collected volume. Press ✓ to confirm and exit.
9	Measure the amount of water (in ml) that was dispensed. Suppose 870 ml was collected. Input this using the Keypad.	FLOW CALIBRATION Volume : 870 mL Use ↑ and ↓ keys to register the value of the collected volume. Press ✓ to confirm and exit.
10	Perform the flow calibration again to improve accuracy. Press ✓.	SETUP Install Date → Buzzer → MQ Recirc Mode → POD Flow Stop → Temp Comp Mode → Flow Calibration → UV 254 nm Activation →
11	Press 3 times on .	STANDBY 02 juil. 2009 14:27 Menu → Ready →

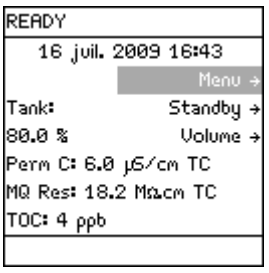
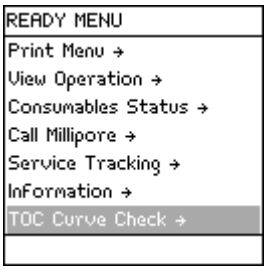
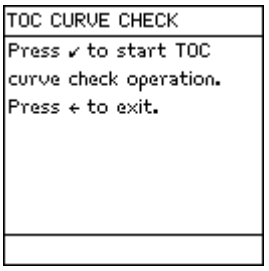
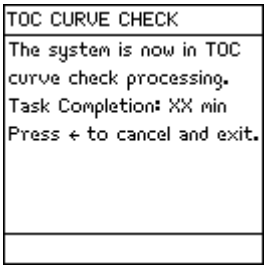
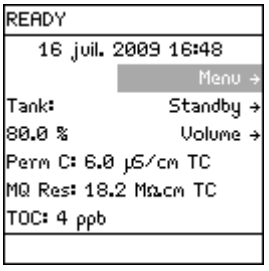
Performing a TOC Curve Check

Introduction

The indication of TOC values is performed with information supplied with a TOC Curve Check. In order to update this information, perform a TOC Curve Check by following the steps below.

Procedure

Follow the steps below to perform a TOC Curve Check.

Step	Action	Diagram
1	Go to READY Mode.	
2	Select Menu. Press .	
3	Select TOC Curve Check. Press .	
4	Press .	
5	After approximately 10 minutes, the System returns to READY Mode.	

Software

Overview

Introduction

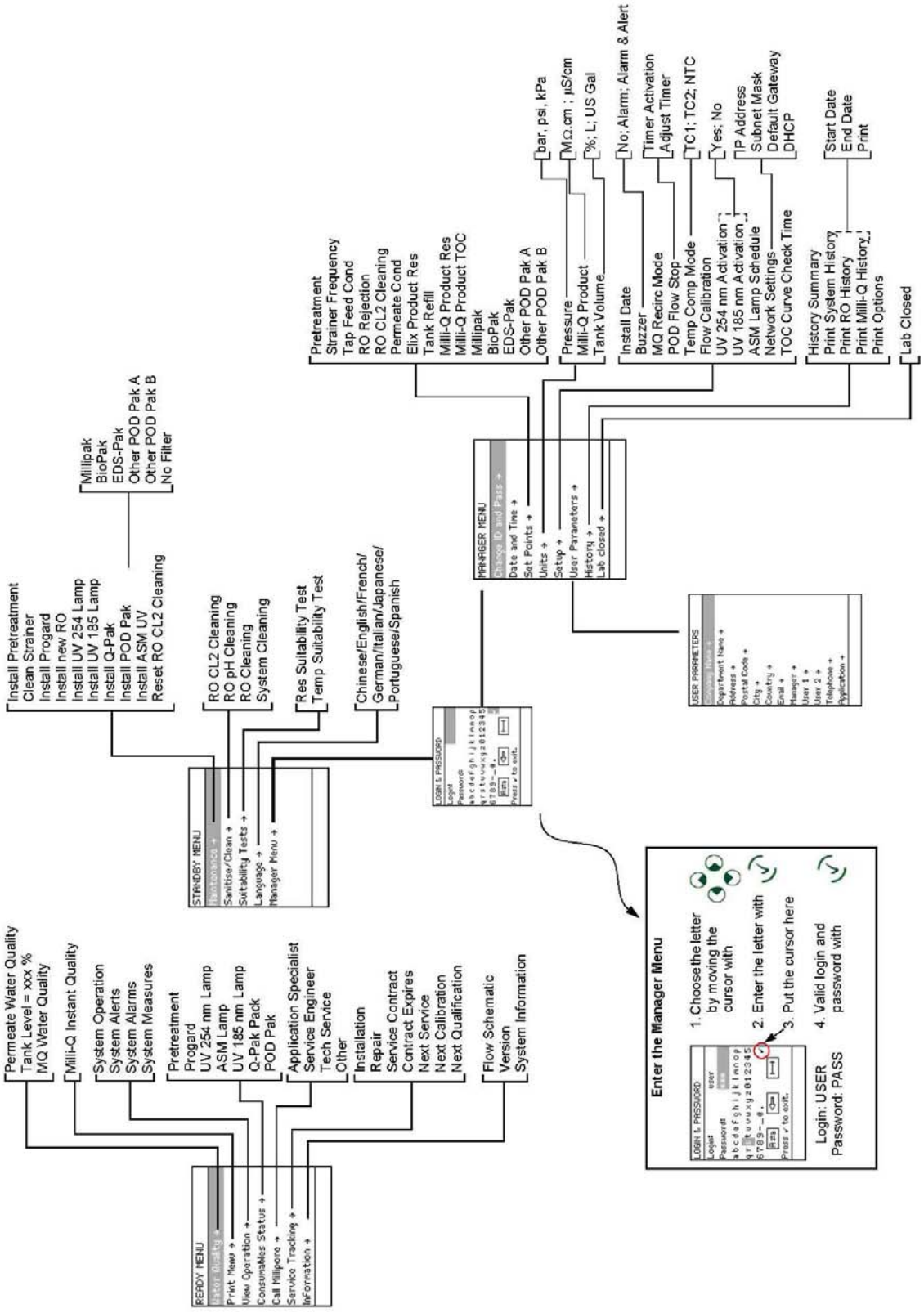
The purpose of this chapter is to explain the various software used in the System.

Contents

This chapter contains the following topics:

Topic	See Page
Software Map	46
Standby Mode	47
Manager Menu	51
Ready Mode	56

Software Map



Standby Mode

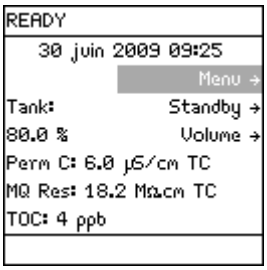
General information

Purpose

STANDBY mode is used primarily for:
- maintenance actions, and
- going to the Manager Menu.

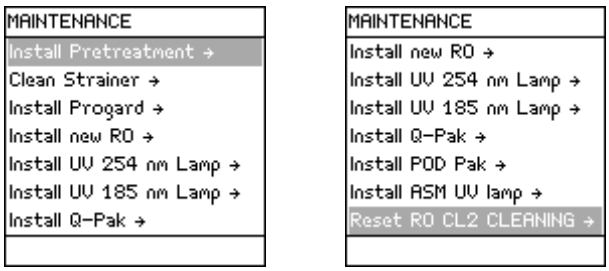
Display

READY Mode from STANDBY Mode

Diagram 1	Action	Diagram 2
	Press .	

Description of Standby Menu

Maintenance The Maintenance Menu is described below.

Diagram 1	Diagram 2
	

Item	Description
Install Pretreatment	Used to reset Alert message REPLACE EXTERNAL PRE-TREATMENT.
Clean Strainer	Used to reset Alert message EXAMINE INLET STRAINER.
Install Progard	Used to see general information about the Progard Cartridge exchange.
Install new RO	Used to start a flush and rinse of a new RO Cartridge.
Install UV 254 Lamp	Used to reset Alert message REPLACE 254 NM LAMP.
Install UV 185 Lamp	Used to reset Alert message REPLACE 185 NM LAMP.
Install Q-Pak	Used to see general information about the Q-Pak pack exchange.
Install POD Pak	Used to reset Alert message REPLACE POD PAK.
Install ASM UV	Used to reset Alert message REPLACE ASM UV LAMP
Reset RO CL2 Cleaning	Used to reset Alert message PERFORM RO CL2 CLEANING at installation.

Continued on next page

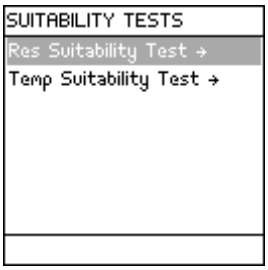
Description of Standby Menu, Continued

Sanitise/clean

Diagram 1	Diagram 2

Item	Description
RO CL2 Cleaning	Used to sanitise the RO Cartridge(s).
RO pH Cleaning	Used to clean the RO Cartridge(s).
System Cleaning	Contact Millipore for more information.

Suitability Tests

Diagram 1	Diagram 2
	

Item	Description
Res Suitability Test	Contact Millipore for more information.
Temp Suitability Test	

Continued on next page

Description of Standby Menu, Continued

Language

Diagram 1	Diagram 2

Item	Description
Language	Change the displayed language.

Manager Menu See the next section for information about the Manager Menu.

Manager Menu

Description

How to enter

- See the Software Map at the beginning of this chapter. The map shows how to enter the Manager Menu.
- To enter the Manager Menu, it is necessary to input a Login and a Password.
- The Software Map indicates how to input a Login and a Password.

Change ID and Password

Diagram 1	Diagram 2

Item	Description
Change ID & Password	• Change the Login and Password used to enter the Manager Menu. • Use 4 characters for the Login and the Password.

Date and Time

Diagram 1	Diagram 2

Item	Description
Date and Time	Adjust your local date and time.

Continued on next page

Set Points

Diagram 1	Diagram 2	
MANAGER MENU Change ID and Password → Date and Time → Set Points → Units → Setup → User Parameters → History →	SET POINTS Pretreatment → Strainer Frequency → Tap Feed Cond → RO Rejection → RO CL2 Cleaning → Permeate Cond → Tank Refill →	SET POINTS Milli-Q Product Res → Milli-Q Product TOC → Millipak → BioPak → EDS-Pak → Pod Pak A → Pod Pak B →

Item	Description
Pretreatment	Change set point for controlling the frequency of the message REPLACE EXTERNAL PRE-TREATMENT.
Strainer Frequency	Change set points for controlling the frequency of the message EXAMINE INLET STRAINER.
Tap Feed Cond	Change set point controlling the message TAP FEED CONDUCTIVITY > SP.
RO Rejection	Change set point controlling the message RO REJECTION < SP.
RO CL2 Cleaning	Change set point for controlling the frequency of the message PERFORM RO CL2 CLEANING
Permeate Cond	Change set point controlling the message PERMEATE C > SP.
Tank Refill	Change set point controlling the tank level where the Milli-Q System starts to refill the tank.
Milli-Q Product Res	Change set point controlling the message MILLI-Q RES < SP, REPLACE Q-PAK.
Milli-Q Product TOC	Change set point controlling the message MILLI-Q TOC > SP.
Millipak	Change set point controlling the message REPLACE POD PAK IN XX DAYS (where $1 \leq XX \leq 15$).
BioPak, EDS-Pak, POD Pak	See above.

Continued on next page

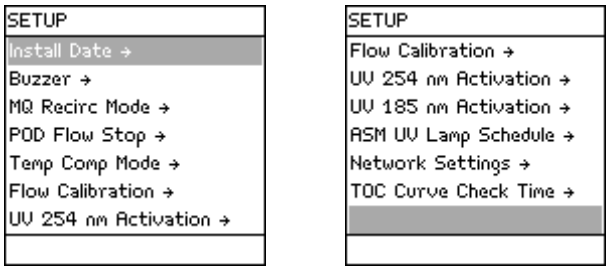
Units

Diagram 1	Diagram 2

Item	Description
Pressure	• Change the displayed units of pressure. • Choices are bar, psi and KPa.
Milli-Q Product	• Change the displayed units of Milli-Q Product Water quality. • Choices are MΩ.cm or µS/cm.
Tank Volume	• Change the displayed units of Tank Volume. • Choices are % full, Litres or US Gallons.

Continued on next page

Setup

Diagram 1	Diagram 2
	

Item	Description
Install Date	Change the installation date.
Buzzer	Change the setting for the Buzzer.
MQ Recirc Mode	Change the amount of time that the System automatically recirculates every hour in READY Mode. ***NOTE*** If set to 60 minutes, the daily TOC Curve Check will not be performed.
POD Flow Stop	Change the amount of time that the POD Unit dispenses continuously before it automatically stops.
Temp Comp Mode	Change the Temperature Compensation Mode.
Flow Calibration	Used for performing a flow calibration.
UV 254 nm Activation	Used to activate or deactivate the UV 254 nm Lamp.
UV 185 nm Activation	Used to activate or deactivate the UV 185 nm Lamp.
ASM UV Lamp Schedule	• Used to change the times when the ASM (Automatic Sanitisation Module) turns on. • See the ASM User Manual for more information.
Network Settings	• Change Network settings. • Contact Millipore for more information.
TOC Curve Check Time	Change the time when a TOC Curve Check is automatically performed each day.

Continued on next page

Description, Continued

User Parameters

The User Parameters are seen when a History Report is printed out.

Diagram 1	Diagram 2

Item	Description
Company Name	Change the item
Department Name	
Address	
Postal Code	
City	
Country	
Email	

History Summary

Diagram 1	Diagram 2

Item	Description
History Summary	Used to see the day by day history of the Water System.
Print System History	See the section “Printing” for more information.
Print RO History	
Print Milli-Q History	
Print Options	

`

Ready Mode

General information

Purpose

In READY Mode, water can be dispensed from the POD Unit. The System should be left in READY Mode most of the time.

Display

STANDBY Mode from READY Mode

Display	Action	Result
	Press .	

READY Mode – water quality values

The READY Mode screen display is explained below.

READY Mode screen	Explanation
	In this example, • The permeate water filling the tank has a conductivity of 6 µS/cm. • The product water dispensed from the POD Unit has: – a resistivity of 18.2 MΩ.cm, – is temperature compensated (TC) at 25°C, and – the TOC value is 4ppb.
	In this example, the System is not dispensing or recirculating water.

Description of Ready Menu

Water Quality

Diagram 1	Diagram 2

Item	Description
Permeate Water Quality	View the quality of the water filling the Reservoir.
Tank Level	View the level of water in the Reservoir.
MQ Prod Quality	View the quality of water obtained from the POD Unit.

Print Menu

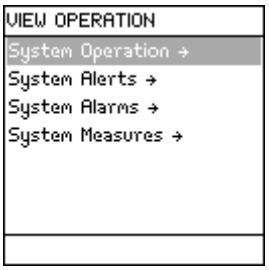
Diagram 1	Diagram 2

Item	Description
MQ Instant Quality	Print the parameters related to the quality of water delivered from the remote Q-POD® Unit if installed.

Continued on next page

Description of Ready Menu, Continued

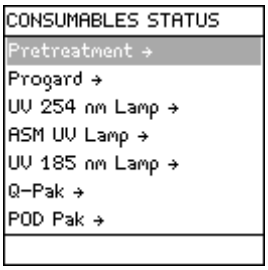
View Operation

Diagram 1	Diagram 2
	

Item	Description
System Operation	View operating parameters: • operating mode, • status of pumps, and • status of UV Lamps.
System Alerts	View a list of active Alert messages. See the Alert Chapter for more information.
System Alarms	View a list of active Alarm messages. See the Alarm Chapter for more information.
System Measures	View: • accumulated production time, • pumps electrical data, and • UV Lamps electrical data.

Continued on next page

Consumables Status

Diagram 1	Diagram 2
	

Consumable	Description
Pretreatment	View information about various consumable items. Information may include: • installation date, • lifetime remaining, • volume processed, • catalogue number, and • serial number ***NOTE:*** Not all of this information is shown for each type of consumable item.
Progard	
UV 254 nm Lamp	
ASM UV Lamp	
UV 185 nm Lamp	
Q-Pak	
POD Pak	

Call Millipore

Diagram 1	Diagram 2

Item	Description
Application Specialist	View: • name, • phone number, and • email address of a Millipore Representative. ***NOTE:*** This information is entered by a Millipore Service Representative.
Service Engineer	
Tech Service	
Other	

Continued on next page

Description of Ready Menu, Continued

Service Tracking

Diagram 1	Diagram 2

Item	Description
Installation	View information that was inputted into the System at time of servicing.
Repair	
Service Contract	View information related to upcoming service.
Contract Expires	***NOTE:***
Next Service	This information is entered by a Millipore Representative.
Next Calibration	
Next Qualification	

Information

Diagram 1	Diagram 2

Item	Description
Flow Schematic	View information that explains the purpose of the major components.
Version	View Software versions.
System Information	View: • System Type, • Catalogue Number, • Serial Number, • Installation Date, and • Manufacturing Date.

Continued on next page

TOC Curve Check

Diagram 1	Diagram 2

Item	Description
TOC Curve Check	The TOC Curve Check is used to determine data that is used for the TOC Indicator. A manual TOC Curve Check can be initiated here. Otherwise, the TOC Curve Check is automatically done once per day.

Using the Milli-Q Direct System

Overview

Introduction

The purpose of this chapter is to explain:

- various ways that water can be dispensed from the System, and
- how to view information, operating parameters and other things about the System.

Contents

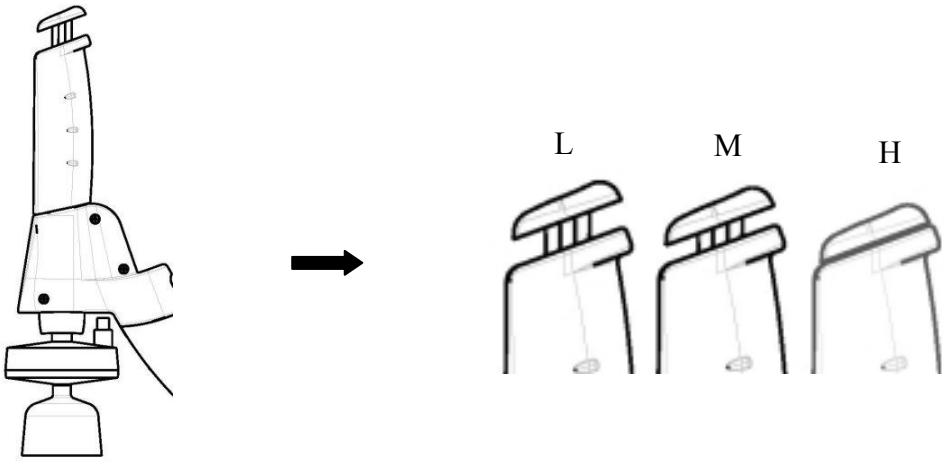
This chapter contains the following topics:

Topic	See Page
Dispensing water	63
Viewing water quality	65

Dispensing water

Using the POD Plunger

To dispense water, press down on the POD Unit plunger while in READY Mode.



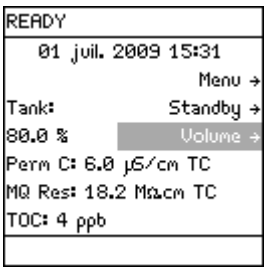
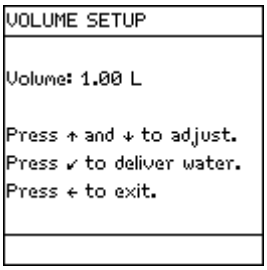
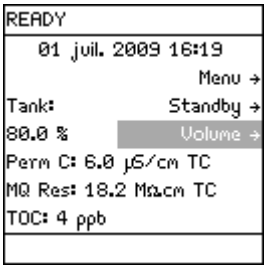
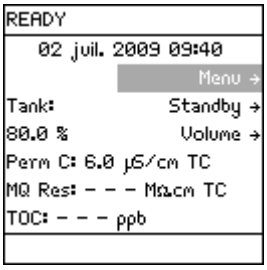
Position	Water flow
L	Low Flow (push slightly)
M	Medium Flow (push slightly)
H	High Flow (push down and hold, release when done)
H	Continuous high flow (push down and release; push down again to stop).

Continued on next page

Dispensing water, Continued

Volumetric dispensing

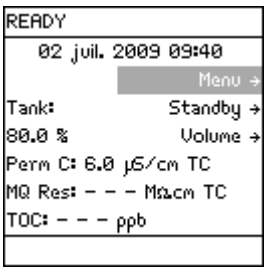
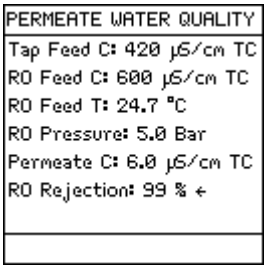
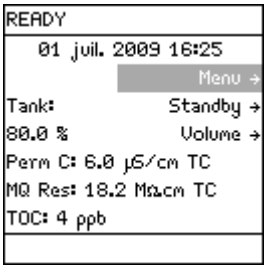
Follow the steps below to volumetrically dispense from the POD Unit.

Step	Action	Diagram
1	Make sure the System is in READY Mode.	
2	• Select Volume. • Press .	
3	• Adjust the volume of water to the required value using and . • Press .	
4	When the volumetric dispensing is finished, the System recirculates water for 3 minutes.	
5	The System stops recirculating water.	

Viewing water quality

Procedure

Follow the steps below to view the water quality.

Step	Action	Diagram
1	Make sure the System is in READY Mode.	
2	• Select Menu. • Press .	
3	Select Water Quality. Press .	
4	• Select the Water Quality to be viewed. • Press .	
Note The term 'TC' means that the resistivity value is temperature compensated.		
5	Press 3 times on .	

Viewing Operation

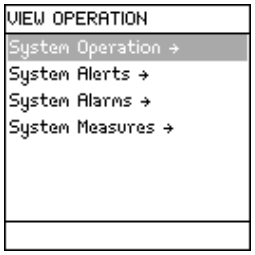
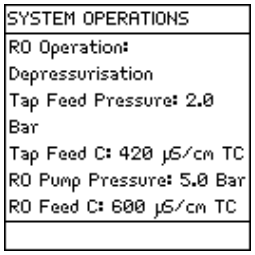
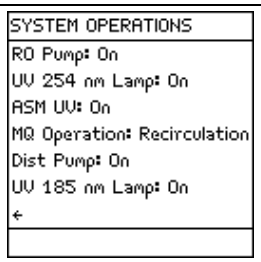
Introduction

VIEW OPERATION allows you to see the status of major components.
Under the View Operation menu, the following items can be selected:

- System Operation,
- System Alerts,
- System Alarms, and
- System Measures.

System Operation

Follow the steps below to go to the System Operation menu.

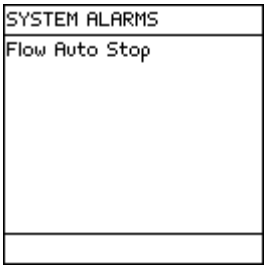
Step	Action	Diagram
1	Start in READY Mode.	
2	Select Menu. Press .	
3	Select View Operation. Press .	
4	Select System Operation. Press .	
5	To see more, press .	

Continued on next page

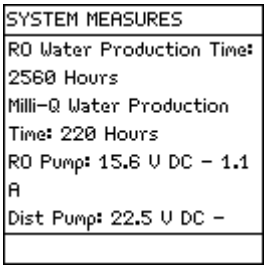
System Alerts

An example Alert is shown here. This is an Alert that is currently being displayed on the bottom of the Main Display in READY Mode or in STANDBY Mode.	
When the timer for the UV 185 nm Lamp is reset, then this Alert is no longer shown on the SYSTEM ALERTS LCD.	

System Alarms

An example Alarm is shown here. This is an Alarm that is currently displayed on the Main Display unless you override the display for one hour.	
When the cause of this Alarm is fixed, then this Alarm is no longer shown on the SYSTEM ALARMS LCD.	

System Measures

Various measurements related to the System are shown here.	

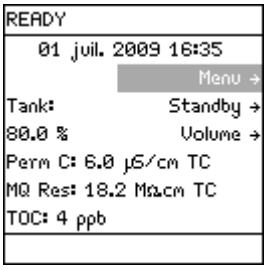
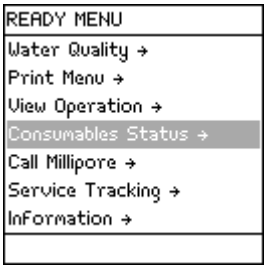
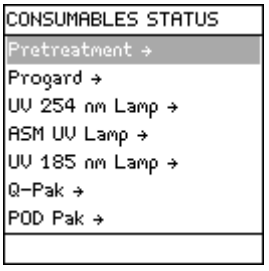
Viewing Consumable Status

Introduction

Consumables Status allows you to see information related to the various consumables.

Procedure

Follow the steps below to view Consumables Status.

Step	Action	Diagram
1	Start in READY Mode.	
2	Select Menu. Press .	
3	Select Consumables Status. Press .	
4	Select the consumable that you would like to see information about. ***Example*** The Progard Cartridge status is shown here. Choose other consumables to see their status.	

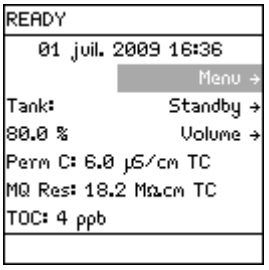
Calling Millipore

Introduction

Call Millipore allows you to see contact information.
A Millipore Representative can enter this information into the System.

Procedure

Follow the steps below to view information under Call Millipore.

Step	Action	Diagram
1	Start in READY Mode.	
2	Select Menu. Press .	
3	Select Call Millipore. Press .	
4	Select the type of Millipore Representative you wish to contact. Press .	

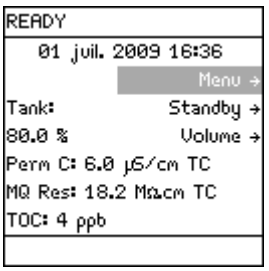
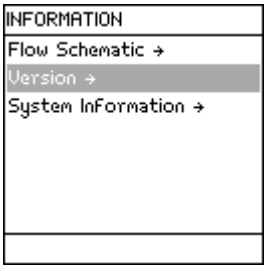
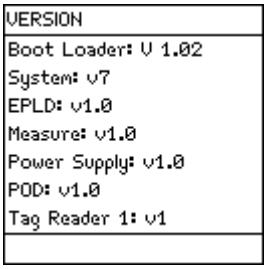
Viewing Information

Introduction

INFORMATION allows you to view:
- flow schematic information,
- version information, and
- serial number and other information.

Procedure

Follow the steps below to see information about the System.

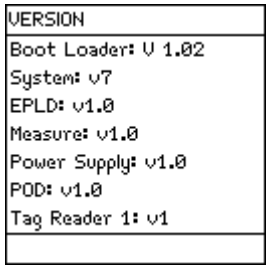
Step	Action	Diagram
1	Start in READY Mode.	
2	Select Menu. Press .	
3	Select Information. Press .	
4	Select the type of information you wish to view. Two examples are shown below. Press .	

Continued on next page

Viewing Information, Continued

Version

The various firmware versions for the System are shown here.

This LCD shows the version used for various components inside the System.	

System Information

The Catalogue Number, Serial Number and other information are shown here. The Serial Number is something you should reference when you contact Millipore.

This LCD shows information such as the Serial Number and the Catalogue Number. ***NOTE:*** The Inst Date (Installation Date) needs to be entered by a Millipore Service Representative. The date is not automatically generated by the System.	

Maintenance

Overview

Introduction

The purpose of this chapter is to explain the common maintenance needed for a System.

Contents

This chapter contains the following topics:

Topic	See Page
Maintenance Schedule	73
Replacing the Progard Cartridge and Vent Filter	74
Replacing the Q-Pak Pack	77
Replacing a POD Pak	81
TOC Curve Check	84
Sanitising the RO Cartridge(s)	86
Cleaning the RO Cartridge(s)	89
Cleaning the Inlet Strainer	91
Calibrating the Flow rate	94

Maintenance Schedule

Consumables

Item	Maintenance needed	When
Progard Cartridge	Replacement	Prompted to by an LCD message.
Q-Pak Pack	Replacement	
POD Pak	Replacement	Prompted to by an LCD message or as necessary.

UV Lamps

Item	Maintenance needed	When
UV 254 nm Lamp	Replacement	Prompted to by an LCD message.
UV 185 nm Lamp		

NOTE:

It is recommended to have a Millipore Service Representative change the UV Lamps in the system.
The replacement of this lamp involves removing the cover of the system. The instructions for replacing these lamps are not included in this User Manual. The instructions are included with the replacement lamp.

Cleaning/ Sanitisation

Item	Maintenance needed	When
Inlet Strainer	Cleaning	Prompted to by an LCD message or as necessary.
RO Cartridge(s)	Cl_2 cleaning	When prompted to by an LCD message.
	pH Cleaning	As necessary.
System	Sanitisation	Contact Millipore for more details.

Calibrating the flow rate

Item	Maintenance needed	When
Flow rate	Recalibration	New Consumable, Sensor or change to Feed water. See 'Calibrating the flow rate' for more information.

TOC Curve Check

Item	Maintenance needed	When
TOC Indicator	Update TOC Curve Check	New Q-Pak Pack installed, or when prompted to by an LCD message.

Replacing the Progard Cartridge and Vent Filter

When

The Progard Cartridge and Tank Vent Filter should be replaced when one of the following Alert messages is displayed.

- Alert message = REPLACE PROGARD CARTRIDGE AND TANK VENT FILTER IN XX DAYS
- Alert message = REPLACE PROGARD CARTRIDGE AND TANK VENT FILTER

Attention

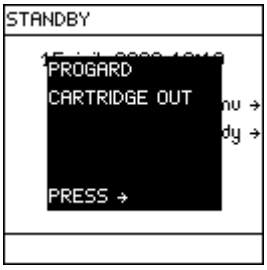
The Progard Cartridge must be flushed after it is installed.

Continued on next page

Replacing the Progard Cartridge and Vent Filter, Continued

Removing

Follow the steps below to remove the used Progard Cartridge.

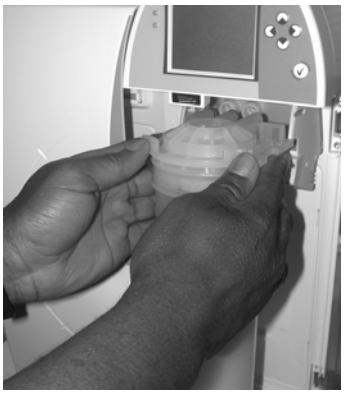
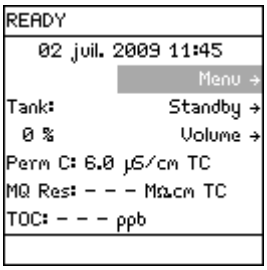
Step	Action	Diagram
1	Place the System into STANDBY Mode.	
2	Push the POD Plunger down once to depressurise the System. After water stops being dispensed, push down the POD Plunger again.	
3	Open the System right door. Remove the used Progard Cartridge.	
4	In a few moments, the System indicates that the Progard Cartridge is removed.	

Continued on next page

Replacing the Progard Cartridge and Vent Filter, Continued

Placing

Follow the steps below to install a new Progard Cartridge.

Step	Action	Diagram
1	Remove the covers on the 2 ports of the Progard Cartridge. Wet the O-rings with water.	
2	Install the Progard Cartridge until it is fully seated. Close the right door.	
3	When a new Progard Cartridge is installed, the LCD looks like this.	
4	Press .	
5	When the Progard Cartridge flush has finished, the Water System goes to READY Mode.	

Replacing the Q-Pak Pack

When

The Q-Pak Pack should be replaced when one of the following Alarm or Alert messages is displayed.

- Alarm message = MILLI-Q RES < SP, REPLACE Q-PAK
- Alert message = REPLACE Q-PAK PACK

Removing

Remove the used Q-Pak Pack by following the steps below.

Step	Action	Diagram
1	Place the system into STANDBY Mode.	
2	Push the POD Plunger down once to depressurise the System. After water stops being dispensed, push down the POD Plunger again.	
3	Open the System left door. Lift up the Pack Locking Handle.	

Continued on next page

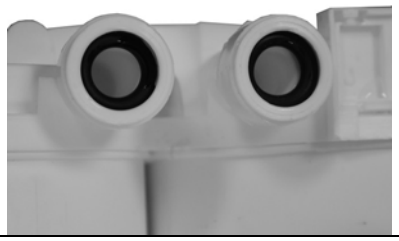
Replacing the Q-Pak Pack, Continued

Removing
(continued)

Step	Action	Diagram
4	Remove the used Q-Pak Pack.	
5	The System will indicate that the Q-Pak Pack is removed in a few moments.	

Placing

Follow the steps below to install a new Q-Pak Pack.

Step	Action	Diagram
1	Remove the covers on the 2 ports of the Q-Pak Pack. Look inside the ports. Make sure the rubber O-rings are firmly in place. Wet the O-rings with water.	
2	Push the top of the Q-Pak Pack into the ports on the System. Push on the bottom of the Q-Pak Pack.	

Continued on next page

Replacing the Q-Pak Pack, Continued

Placing
(continued)

Step	Action	Diagram
3	Push the Pack Locking Handle down. Close the left door.	
4	When a new Q-Pak Pack is installed, the screen looks like this. Press .	

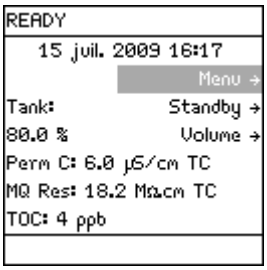
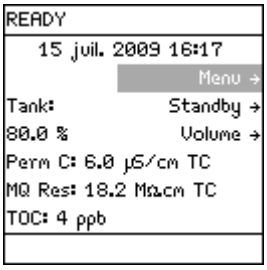
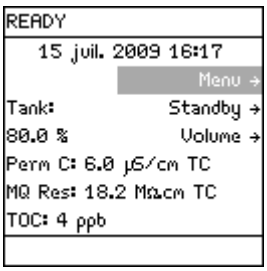
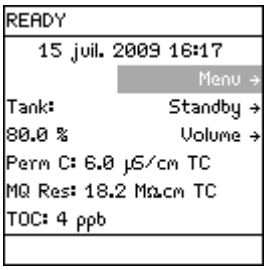
Rinsing

The Q-Pak pack, when newly installed, needs to be rinsed. This ensures optimal water quality.

Step	Action	Diagram
1	Locate the clear tubing and the barbed fitting from the System accessories bag. Screw the barbed fitting onto the POD Unit. ***NOTE:*** Do not use any white tape on the threads of the barbed fitting. An O-ring is located inside the POD Unit. Push one end of the clear tubing onto the end of the barbed fitting. Place the other end of the clear tubing into a sink.	

Continued on next page

Rinsing (continued)

Step	Action	Diagram
2	The System must be in READY Mode.	
3	Push the plunger down on the POD Unit.	
4	Dispense water for about 10 minutes. This flushes out any trapped air in most of the System. This also rinses off the purification media located in the Q-Pak Pack.	
5	Leave the System in READY Mode when finished.	

Manual TOC Curve Check

A TOC Curve Check should be performed when the Q-Pak Pack has been replaced. Refer to the TOC Curve Check section for more information.

Flow Rate Calibration

The volumetric dispensing flow rate should be calibrated when the Q-Pak Pack has been replaced. Refer to the procedure in the Installation chapter.

Replacing a POD Pak

Basing on flow rate

One possible reason for a decrease in Milli-Q Water flow rate is a clogged POD Pak. The POD Pak should be replaced when it appears to be clogged. For Millipak and BioPak final filters, make sure the POD Pak is not air-locked. Dispense water and open the vent to see if there is any trapped air. Close the vent after this.

Basing on LCD message

The POD Pak needs replacement when the following Alert message is displayed.

- Alert message = REPLACE POD PAK

Placing and flushing

Follow the instructions delivered with the POD Pak.

Registering

The POD Pak installation has to be registered.
Follow the steps below to register the installation of the POD Pak.

Step	Action	Diagram
1	Start in STANDBY Mode.	
2	Select Menu. Press .	
3	Select Maintenance. Press .	

Continued on next page

Replacing a POD Pak, Continued

Registering
(continued)

Step	Action	Diagram
4	Scroll down to Install POD Pak by pressing .	
5	Press .	
6	Press .	
7	In this example, the replacement POD Pak is a Millipak. Press .	
8	Press .	

Continued on next page

Registering (continued)

Step	Action	Diagram
9	Press .	
10	Press 3 times on .	

Flow Rate Calibration

The volumetric dispensing flow rate should be calibrated when a POD Pak has been replaced. Refer to the procedure in the Installation chapter.

TOC Curve Check

When

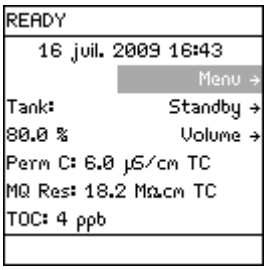
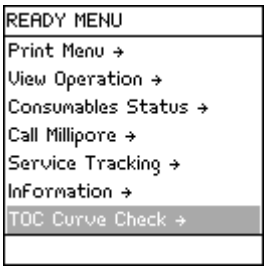
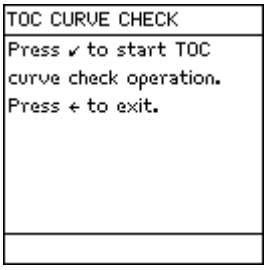
A TOC Curve Check should be done when the Q-Pak pack is replaced or when TOC values are fluctuating to ensure that the TOC values displayed are valid.

NOTE:

The TOC Curve Check can be started manually following the replacement and flushing of the Q-Pak pack. The System automatically performs a TOC Curve Check once per day. So, if the TOC Curve Check is not started manually following the consumables replacement, it will be done automatically within the next 24 hours or sooner.

Procedure

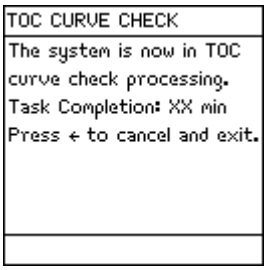
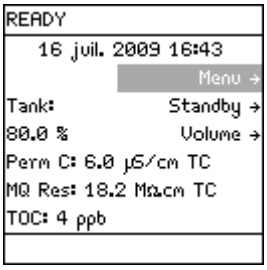
Follow the steps below to perform a TOC Curve Check.

Step	Action	Diagram
1	Go to READY Mode.	
2	Select Menu. Press .	
3	Select TOC Curve Check. Press .	

Continued on next page

TOC Curve Check, Continued

Procedure
(continued)

Step	Action	Diagram
4	Press .	
5	After approximately 10 minutes, the System returns to READY Mode.	

Sanitising the RO Cartridge(s)

When

RO cartridge sanitisation is required to prevent bacteria development in the cartridge.
To maintain optimum RO performance, perform sanitisation when the following alert message is displayed:

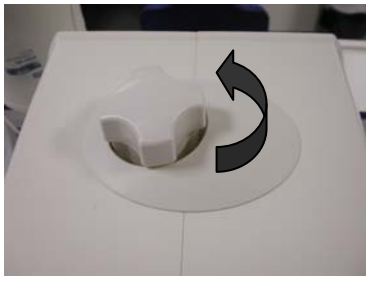
- Alert message = PERFORM RO CL2 CLEANING.

Safety

Wear Eye Safety Glasses and Laboratory Gloves and other appropriate safety equipment when sanitising the RO Cartridge(s).

Opening the Sanitisation Port

Follow the steps below to open the Sanitisation Port.

Step	Action	Diagram
1	• Go to STANDBY Mode. • Allow the Water System to depressurise for a few seconds.	
2	Use the Sanitisation Port Removal Tool and loosen the cap.	
3	Remove the cap.	

Closing the Sanitisation Port

Reverse the steps above.

NOTE:

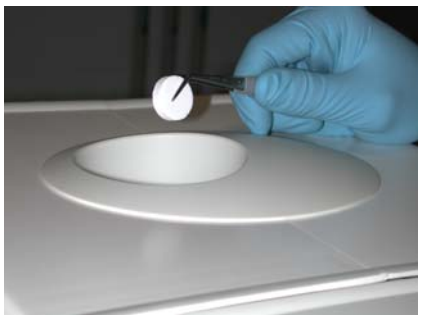
Do not use the Sanitisation Port Removal Tool to tighten the cap.

Continued on next page

Sanitising the RO Cartridge(s), Continued

Sanitising

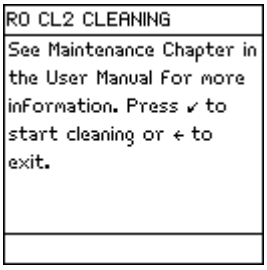
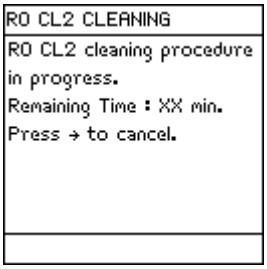
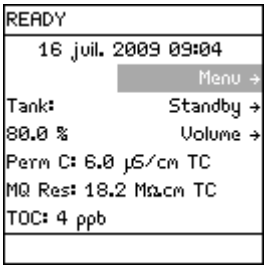
Follow the steps below to sanitise the RO Cartridge(s).

Step	Action	Diagram
1	Place a chlorine tablet into the Sanitisation Port.	
2	Put the cap back on and hand-tighten it.	
3	Go to STANDBY Mode.	
4	• Select Menu. • Press .	

Continued on next page

Sanitising the RO Cartridge(s), Continued

Sanitising
(continued)

Step	Action	Diagram
5	• Select Sanitise/Clean. • Press .	
6	• Select RO CL2 Cleaning. • Press .	
7	• Press . • The RO CL2 cleaning mode will last 19 minutes.	
8	When the cleaning is finished, the Water System automatically goes into READY Mode.	

Continued on next page

Cleaning the RO Cartridge(s)

When

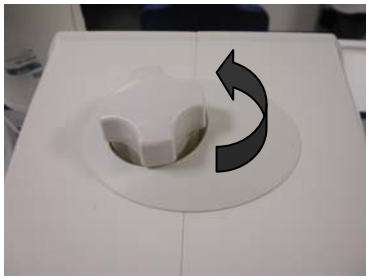
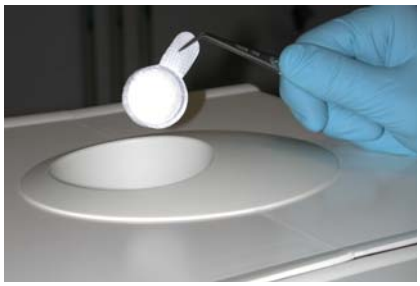
Cleaning the RO cartridge may be required when feed water contains excess of some chemicals.
Perform cleaning if required, after recommendation from your Millipore Service Representative.

Safety

Wear Eye Safety Glasses and Laboratory Gloves and other appropriate safety equipment when cleaning the RO Cartridge(s).

Cleaning

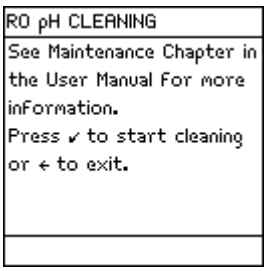
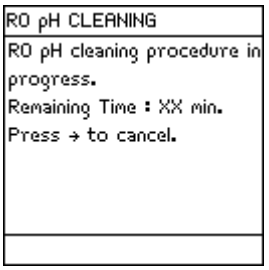
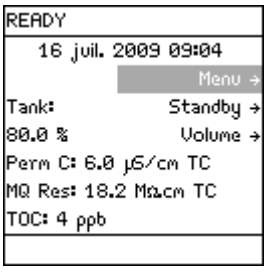
Follow the steps below to clean the RO Cartridge(s).

Step	Action	Diagram
1	Open the sanitisation port as described in the previous section.	
2	Place a cleaning agent pouch (ROClean™ A or ROClean B) into the Sanitisation Port.	
3	Put the cap back on and hand-tighten it. ***NOTE:*** The chemical in the pouch will dissolve during the pH Cleaning sequence. Remove the empty pouch the next time the Santisation Port cap is removed.	
4	Go to STANDBY Mode.	

Continued on next page

Cleaning the RO Cartridge(s), Continued

Cleaning
(continued)

Step	Action	Diagram
5	• Select Menu. • Press .	
6	• Select Sanitise/Clean. • Press .	
7	• Select RO pH Cleaning. • Press .	
8	• Press . • The RO pH cleaning will last 142 minutes.	
9	When the pH Cleaning is finished, the Water System automatically returns to READY Mode.	

Cleaning the Inlet Strainer

Purpose

- The purpose of the Inlet Strainer is to prevent a large particle from entering the System.
- If the Inlet Strainer becomes clogged, then feed water does not flow freely to the System.
- Cleaning the Inlet Strainer removes any trapped debris.

When

The Inlet Strainer should be cleaned when the following Alert message is displayed.

- Alert message = EXAMINE INLET STRAINER

The Inlet Strainer should also be cleaned whenever you suspect it is clogged.

Procedure

Follow the steps below to clean the Inlet Strainer.

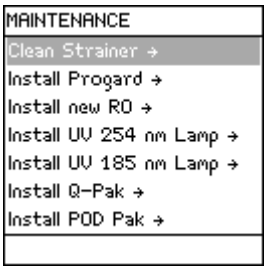
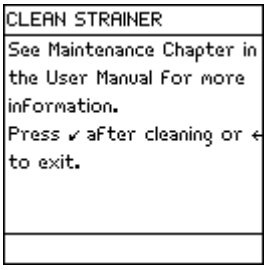
Step	Action
1	Go to STANDBY Mode.
2	Shut off the feed water supply.
3	Unscrew the Inlet Strainer from the feed water supply.
4	Detach the tubing on the other end of the Inlet Strainer.
5	Flush water backwards through the Inlet Strainer.
6	Apply 3 to 4 turns of new white tape to the threads of the feed water pipe.
7	Screw the Inlet Strainer back onto the feed water pipe.
8	Attach the tubing to the other end of the Inlet Strainer.
9	Open the feed water supply valve.
10	Go to READY Mode.

Continued on next page

Cleaning the Inlet Strainer, Continued

Registering

Follow the steps below to register the cleaning of the Inlet Strainer.

Step	Action	Diagram
1	Go to STANDBY Mode.	
2	Select Menu. Press .	
3	Select Maintenance. Press .	
4	Select Clean Strainer. Press .	
5	A picture is shown. Press .	

Continued on next page

Cleaning the Inlet Strainer, Continued

Procedure
(continued)

Step	Action	Diagram
6	Press .	
7	Press 3 times on .	
8	Go to READY Mode.	

Calibrating the Flow rate

When

The flow rate should be calibrated when:

- a new consumable is installed such as:
  - POD Pak, or
  - Q-Pak Pack,
- a sensor or major component is changed,
- volumetric dispensing is not accurate.

Procedure

Follow the procedure shown in the Installation Chapter.

Alarms

Overview

Introduction

The purpose of this chapter is to explain the Alarm messages shown on a System.
Specifically, this chapter explains how:

- an Alarm message is displayed,
- to read an Alarm message,
- to cancel an Alarm, and
- a list of Alarm messages is shown.

Contents

This chapter contains the following topics:

Topic	See Page
Alarm Information	96
Summary of Alarm messages	100

Alarm Information

Definition

An Alarm message is a way of informing you that immediate attention is required for the System.

Alarm shown – what to do?

It is not recommended to use the System when an Alarm message is shown. Contact Millipore if an Alarm message is shown and the problem can not be resolved.

Types

The following table summarizes the different types of Alarm messages.

Type	Description
Alarm stop	Some Alarms automatically stop the System from dispensing water. An example of this is the Alarm message PROGARD CARTRIDGE OUT. The text display of this type of Alarm can be cancelled for one hour by using the Keypad.
Alarm	Some Alarms do not automatically stop the System from dispensing water. An example of this is the Alarm message MILLI-Q T < MIN. The text display of this type of Alarm can be cancelled for one hour by using the Keypad.

Main Display

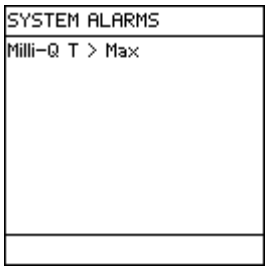
The Alarm message is shown superimposed on the Main Display.
The red LED is lit steadily when an Alarm message is shown.
In this example, the Alarm Message MILLI-Q T > MAX is shown.

Continued on next page

Alarm Information, Continued

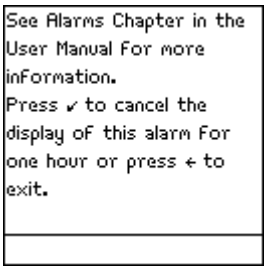
System Alarms

When an Alarm is shown, it is listed under the System Alarms LCD. See the section <View Operation> for information on how to access this LCD.



Viewing an Alarm Message

Follow the steps below to view an Alarm message.

Step	Action	Diagram
1	The Alarm message is shown superimposed on the Main Display.	
2	Press .	
3	Press .	

Continued on next page

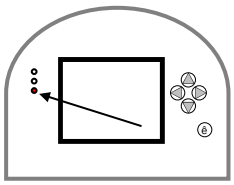
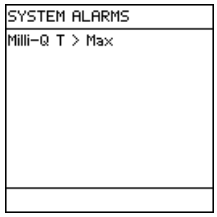
Cancelling an Alarm message

The display of an Alarm message can be cancelled by:

- fixing the cause of the Alarm, or
- using the Keypad. This cancels the display of the Alarm message for 1 hour.

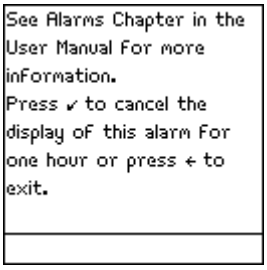
Alarm – before cancelling

In this example, the Alarm message is MILLI-Q T > MAX.

Main Display	LEDs	Main Display
		

Cancelling an Alarm message procedure

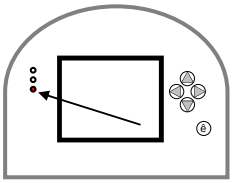
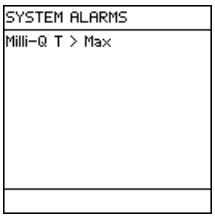
Follow the steps below to cancel an Alarm message.

Step	Action	Diagram
1	The Alarm message is shown superimposed on the Main Display.	
2	Press .	
3	Press .	The display of the Alarm is cancelled for one hour. It appears after one hour unless the cause of the Alarm is fixed.

Continued on next page

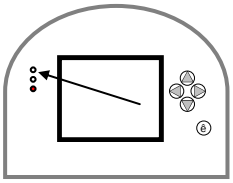
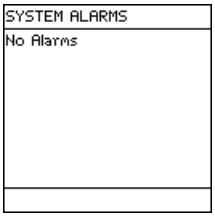
Alarm Information, Continued

Alarm – after cancelling the text display

Main Display	LEDs	Main Display
		

Alarm – fixed

Now suppose a Millipore Service Representative fixes the cause of the Alarm.

Main Display	LEDs	Main Display
		

Summary of Alarm messages

Alarm stop messages

LCD message	What it means
FLOW AUTO STOP	• This alarm stops the Milli-Q portion of the system. • A safety feature of the Milli-Q Direct system has automatically stopped dispensing water after 40 minutes to avoid risks of overflow. • Push the POD Unit Plunger all the way down and release. • This resets the dispenser timer and makes the POD Unit available for dispensing.
INCORRECT PROGARD CARTRIDGE	• This alarm stops the RO portion of the system. • The System does not recognize the type of Progard Cartridge being installed. • Contact Millipore.
INCORRECT Q-PAK PACK	• This alarm stops the Milli-Q portion of the system. • The System does not recognize the type of Q-Pak Pack being installed. • Contact Millipore.
LOW FEED WATER PRESSURE	• This alarm stops the RO portion of the system. • Check Feed water pressure and rectify. • Go to STANDBY Mode and go to READY Mode to release any trapped air in the Water System. • Contact Millipore if the problem persists.
PERMEATE C > SP	• This alarm stops the RO portion of the system. • The Permeate conductivity is above the set point. • Contact Millipore.
POD LOCKED	• This alarm stops the Milli-Q portion of the system. • The POD Unit was left in the open position. • Push the Plunger all the way down and release.

Continued on next page

Summary of Alarm messages, Suite

Alarm stop messages (suite)

LCD message	What it means
PROGARD CARTRIDGE OUT	• This alarm stops the RO portion of the system. • The Progard Cartridge is not installed correctly or it has been removed. • Verify that the Progard Cartridge is installed correctly. • Contact Millipore if the problem continues.
Q-PAK PACK OUT	• This alarm stops the Milli-Q portion of the system. • The Q-Pak Pack is not installed correctly or it has been removed. • Verify that the Q-Pak Pack is installed correctly. • Contact Millipore if the problem continues.
TANK EMPTY	• This alarm stops the Milli-Q portion of the system. • The System has detected an empty Reservoir. • Refill the Reservoir. • Verify that the Reservoir level sensor is plugged into the System Cabinet.
WATER DETECTED	• This alarm stops the whole system to prevent risks of flood. • A Water Sensor (an accessory connected to the System) has detected water on the surface where it is located. This may be caused by a leak. • Clean up the spilled water. • Make sure the source of the leak is fixed. • Place the system in Standby Mode, then Ready mode.

Ce sujet continue page suivante

Summary of Alarm messages, Continued

Alarm messages

CLEANING CANCELLED	• A cleaning mode was cancelled and was not fully completed. • Go to STANDBY Mode and then go to READY Mode. • The Milli-Q System will go into a 15 minute FLUSH Mode. The system will then automatically fill the Reservoir.
MILLI-Q INTER R > MAX	• The Intermediate resistivity is out of measurement range. • Contact Millipore.
MILLI-Q INTER R < MIN	
MILLI-Q INTER T < MIN	• The Intermediate temperature is out of measurement range. • Contact Millipore.
MILLI-Q INTER T > MAX	
MILLI-Q RES < SP, REPLACE Q-PAK	• The Milli-Q Water resistivity is below the set point. • Dispense water to eliminate any trapped air in the System. • If the issue persists, replace the Q-Pak Pack.
MILLI-Q RES > MAX	• The Milli-Q Water resistivity is out of measurement range. • Contact Millipore.
MILLI-Q T < MIN	• The Milli-Q Water temperature is out of measurement range. • Contact Millipore.
MILLI-Q T > MAX	
MILLI-Q TOC > SP	• The TOC is above the set point. • Contact Millipore.
PERMEATE C < MIN	• The Permeate conductivity is out of measurement range. • Contact Millipore.
PERMEATE C > MAX	
RO FEED C < MIN	• The Feed water conductivity is out of measurement range. • Contact Millipore.
RO FEED C > MAX	
RO FEED T < MIN	• The Feed water temperature is out of measurement range.
RO FEED T > MAX	

Alerts

Overview

Introduction

The purpose of this chapter is to explain the Alert messages shown on a System.
Specifically, this chapter explains how:

- an Alert message is displayed,
- to read an Alert message,
- to cancel an Alert, and
- a list of Alert messages is shown.

Contents

This chapter contains the following topics:

Topic	See Page
Alert information	104
Summary of Alert messages	109

Alert information

Purpose

An Alert message corresponds to a maintenance request. Most of the Alert messages are related to the replacement of a consumable.

Types

The following table summarizes the different types of Alert messages.

Type	Description
Minor Alert	A minor alert message indicates that a maintenance action is needed within a number of days.
Major Alert	A major Alert message corresponds to an immediate maintenance request.

Examples

An example of a minor alert message would be REPLACE POD PAK IN 15 DAYS.
An example of a major alert message would be REPLACE POD PAK.

Main Display

An Alert message is shown on the bottom of the Main Display.
In this example, the Alert message REPLACE POD PAK scrolls across the bottom of the LCD.

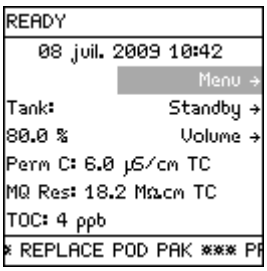
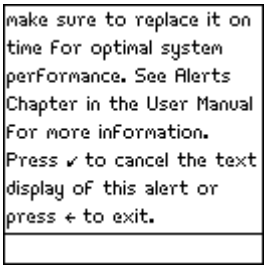
The yellow LED is lit steadily when an Alert message is shown. However, if an Alert and an Alarm are both present, then only the red LED is lit.
When an Alert is shown, it is listed under the System Alerts LCD. To access the System Alerts LCD, see the Section View Operation.

Continued on next page

Alert information, Continued

Viewing an Alert Message

Follow the steps below to view an Alert message.

Step	Action	Diagram
1	Alert messages appear on the bottom line of the screen when the system is in READY mode or in STANDBY mode.	
2	Press ✓ as many times as required to reach the bottom line.	
3	Press → to access detailed information about the alert.	
4	Press ✓ to view full information about the alert if needed.	
5	Press ←.	

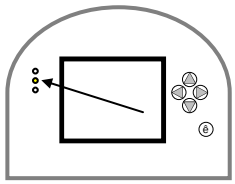
Continued on next page

Cancelling a Minor Alert message - procedure

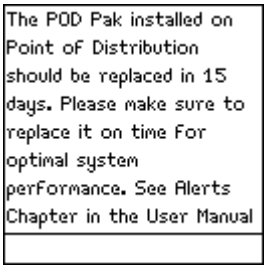
A Minor alert message can be cancelled by:

- performing the maintenance action (i.e. replace consumable),
- using the Keypad (see below), or
- a Major Alert message is shown. This eliminates the Minor Alert message.

Example: Before cancelling, the Minor Alert message is REPLACE POD PAK IN 15 DAYS.

Main Display	LEDs	Main Display
		

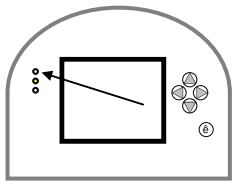
Follow the steps below to cancel a Minor Alert message.

Step	Action	Diagram
1	Press .	
2	Press .	
3	Press .	The display of the Minor Alert is cancelled.

Continued on next page

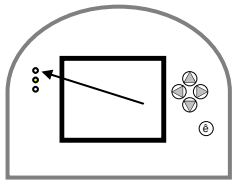
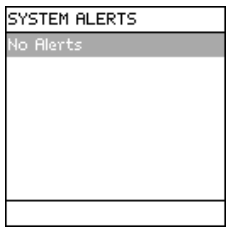
Minor Alert - after cancelling

The Alert message has been cancelled but the cause of the message is still active.

Main Display	LEDs	Main Display
		

Minor Alert - consumable replaced

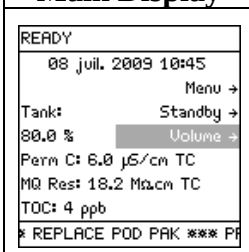
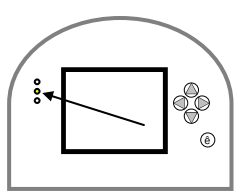
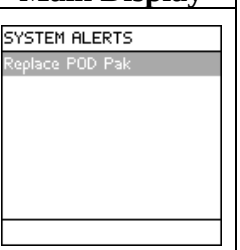
The Alert message has been cancelled when the POD Pak has been replaced.

Main Display	LEDs	Main Display
		

Cancelling a Major Alert message - procedure

A Major Alert message can be cancelled by:
- performing the maintenance action (i.e. replace consumable), or
- using the Keypad. This cancels the display of the Major Alert message for 24 hours.

Example: Before cancelling, the Major Alert message is REPLACE POD PAK.

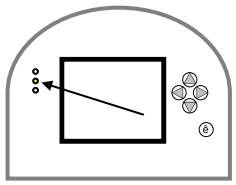
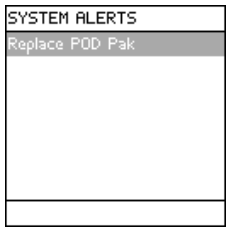
Main Display	LEDs	Main Display
		

A Major Alert message can be cancelled using the Keypad. This is done in the same way that a Minor Alert message is cancelled.
The display of the Major Alert is cancelled for 24 hours. It appears again after 24 hours unless the maintenance action is performed.

Continued on next page

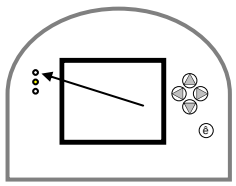
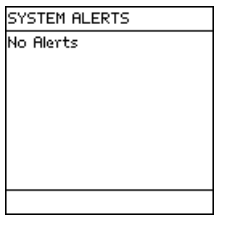
Major Alert – after cancelling

The Alert message has been cancelled but the cause of the message is still active.

Main Display	LEDs	Main Display
		

Major Alert - consumable replaced

The Alert message has been cancelled when the POD Pak has been replaced.

Main Display	LEDs	Main Display
		

Summary of Alert messages

Alert messages

LCD message	What it means
CALIBRATION VISIT OVERDUE XX DAYS	• The System has determined that a Calibration Visit is overdue. • Contact Millipore.
CHECK ASM UV LAMP	• The ASM UV Lamp is not turning on. • Contact Millipore.
CHECK UV 185 NM LAMP	• The UV 185 nm Lamp is not turning on. • Contact Millipore.
CHECK UV 254 NM LAMP	• The UV 254 nm Lamp is not turning on. • Contact Millipore.
EXAMINE INLET STRAINER	• The System has determined that it is time to clean the Inlet Strainer. • Clean the Inlet Strainer and reset the message.
LOW RO PUMP PRESSURE	• The Water System has determined that the RO Pump Pressure is below specification. • Contact Millipore.
NEXT CALIBRATION VISIT IN XX DAYS	• The System is prompting you that a Calibration Visit should be scheduled. • Contact Millipore.
NEXT QUALIFICATION VISIT IN XX DAYS	• The System is prompting you that a Qualification Visit should be scheduled. • Contact Millipore.
NEXT SERVICE VISIT IN XX DAYS	• The System is prompting you that a Service Visit should be scheduled. • Contact Millipore.
NO RESPONSE FROM DHCP SERVER	• Contact your network administrator. • Restart the System.
PERFORM RO CL2 CLEANING	• The Water System has determined that it is time to perform a RO Cl2 cleaning. • Start a RO Cl2 cleaning. The timer is reset automatically.

Continued on next page

Summary of Alert messages, Continued

Alert messages (continued)

LCD message	What it means
PERFORM TOC CURVE CHECK	• The System has determined that a TOC Curve Check should be performed. • Perform a TOC Curve Check or wait until one is done automatically. • If this message persists after 24 hours of its appearance, then contact Millipore.
QUALIFICATION VISIT OVERDUE XX DAYS	• The System has determined that a Qualification Visit is overdue. • Contact Millipore.
REPLACE ASM UV LAMP	• The Water System has determined that the ASM UV Lamp should be replaced. • Contact Millipore.
REPLACE ASM UV LAMP IN XX DAYS	• The Water System has determined that the ASM UV Lamp on the Reservoir should be replaced in XX days, where XX is 15, …, 1. • Contact Millipore.
REPLACE EXTERNAL PRETREATMENT	• The Water System has determined that the external pretreatment (optional) should be replaced. • Consult the documentation supplied with the external pretreatment for more information.
REPLACE EXTERNAL PRETREATMENT IN XX DAYS	• The Water System has determined that the external pretreatment (optional) should be replaced in XX days, where XX is 15, …, 1. • Consult the documentation supplied with the external pretreatment for more information.
REPLACE POD PAK	• The System has determined that the POD PAK needs replacement. • Replace the POD Pak and reset the timer.
REPLACE POD PAK IN XX DAYS	• The System has determined that the POD PAK should be replaced in XX days, where XX is 15, …, 1. • Replace the POD Pak and reset the timer.

Continued on next page

Summary of Alert messages, Continued

Alert messages (continued)

REPLACE Q-PAK PACK	• The System has determined that the Q-Pak Pack should be replaced. • Replace the Q-Pak Pack.
REPLACE Q-PAK PACK IN XX DAYS	• The System has determined that the Q-Pak Pack should be replaced in XX days, where XX is 15, …, 1. • Replace the Q-Pak Pack.
REPLACE PROGARD AND TANK VENT FILTER	• The System has determined that the Progard Cartridge and the Vent Filter should be replaced. • Replace the Progard Cartridge and the Vent Filter.
REPLACE PROGARD AND TANK VENT FILTER IN XX DAYS	• The System has determined that the Progard Cartridge and the Vent Filter should be replaced in XX days, where XX is 15, …, 1. • Replace the Progard Cartridge and the Vent Filter.
REPLACE UV 185 NM LAMP	• The System has determined that the UV 185 nm Lamp should be replaced. • Contact Millipore.
REPLACE UV 185 NM LAMP IN XX DAYS	• The System has determined that the UV 185 nm Lamp should be replaced in XX days, where XX is 15, …, 1. • Contact Millipore.
REPLACE UV 254 NM LAMP	• The Water System has determined that the UV 254 nm Lamp should be replaced. • Contact Millipore.
REPLACE UV 254 NM LAMP IN XX DAYS	• The Water System has determined that the UV 254 nm Lamp should be replaced in XX days, where XX is 15, …, 1. • Contact Millipore.
RO REJECTION < SP	• The RO % Rejection is below the set point. • Contact Millipore.
SERVICE VISIT OVERDUE XX DAYS	• The System has determined that a Service Visit is overdue. • Contact Millipore.

Continued on next page

Summary of Alert messages, Continued

Alert messages (continued) (continued)

TAP FEED CONDUCTIVITY > SP	• The Tap Water conductivity is below the set point. • Contact Millipore.
THE NETWORK CABLE IS UNPLUGGED	• Check the Ethernet Cable plugged into the System and the computer. • Restart the System.
THIS IP ADDRESS IS ALREADY USED BY ANOTHER SYSTEM	• Contact your network administrator. • Restart the System.
TOC < 1 PPB	• Invalid TOC measurement. • Perform a TOC Curve Check. • Contact Millipore.
TOC FEEDWATER < 15.3 MΩ.cm	• Due to low resistivity at the inlet of the UV Lamp, the TOC measurement can not be performed properly anymore. • Please replace the Q-Pak Pack to ensure valid TOC indications.

Ordering Information

Consumables, Accessories and Systems

Milli-Q Direct System

Item	Catalogue Number
Milli-Q Direct 8	ZR0Q00800
Milli-Q Direct 16	ZR0Q01600

Consumables

Item	Catalogue Number
Progard T3 Cartridge	PR0G000T3
Q-Pak TEX Pack	QPAK00TEX
Q-Pak TIX Pack	QPAK00TIX
BioPak Ultrafilter	CDUFBI001
Millipak Express 40 Final Filter	MPGP04001
EDS-Pak® Final Filter	EDSPAK001
VOC-Pak™ Final Filter	V0CPAK001
EDS-Pak Installation Kit - ordered 1 time only for multiple EDS-Pak uses.	EDSKIT001
UV 185 nm Lamp	ZMQUVLP01
UV 254 nm Lamp	ZLXUVLP01
ASM (Automatic Sanitisation Module) UV Lamp	ZLXUVLPL1

Accessories

Item	Catalogue Number
Reservoir 30 Litre	TANKPE030
Reservoir 60 Litre	TANKPE060
Reservoir 100 Litre	TANKPE100
Remote POD	ZMQSP0D02
ASM (Automatic Sanitisation Module) for Reservoir	TANKASMIN
Cabinet Wall Mounting Bracket	WMBSMT002
Footswitch (for Remote POD)	ZMQSFTS01
Remote POD Wall Mounting Bracket	WMBQP0D01
Water Sensor	ZFWATDET4

Note

Regularly scheduled preventive maintenance/calibration will help you obtain the best performance from your Millipore water purification system throughout its entire lifetime.
Please contact your Millipore representative to find the best options for your system including our maintenance programs.